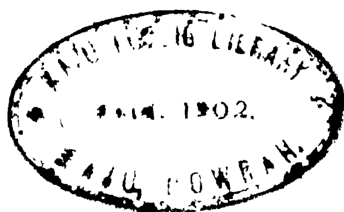


# THE NEW SYDENHAM SOCIETY.

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VOLUME LXV.

A

# BIENNIAL RETROSPECT

OF

# MEDICINE, SURGERY,

AND THEIR

# ALLIED SCIENCES,

## 1873-74.

EDITED BY

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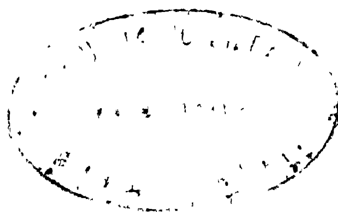
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# REPORT

ON THE

# PROGRESS OF PHYSIOLOGY AND THE ALLIED SCIENCES,

## DURING THE YEARS 1873 AND 1874.

BY

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The principal works that have appeared in Anatomy have been new editions of Quain and Sharpey, Gray, Ellis, and Heath. Sappey's 'Traité d'Anatomie,' a very fine treatise, has nearly approached completion. Henle's equally valuable 'Handbuch der Anatomie' has ended with a volume on the nervous system.

In Physiology, Nichols, Hinton, Cleland, and Foster, have all published small works in English, whilst in French or German have appeared Küss and Duval, Budge and Wundt, and an important series of lectures by Brucke, with new editions of the works of Dalton, Hermann, and Ranke. Colin has published two handsome volumes on 'Comparative Physiology,' and Fleming a good translation of Chauveau's 'Comparative Anatomy.' Milne-Edwards has completed the tenth volume of his valuable 'Leçons sur la Physiologie et l'Anatomie Comparée.'

In Histology the two chief works have been 'The Handbook for the Physiological Laboratory," by Sanderson, Klein, Brunton, and Foster, and the excellent translation of 'Frey's Histology' by Mr. Barker.

### I.—ALIMENTARY SYSTEM.

*Teeth.*—Kollmann[1] has described the dentine, enamel and cement of various animals; P. Magitot et Legros[2] the original formation of the dentary follicle in Mammalia, and Baume[3] the process of eruption.

*Saliva.*—E. Hering[4] attributes the high pressure under which the saliva is secreted to the strong disposition to imbibe water—or, in other words, the high endosmotic equivalent—possessed by the mucin.

*Deglutition.*—Mosso[5] disputes the doctrine that the movements of

[1] 'Kölliker und Siebold's Zeits. f. wiss. Zool.,' B. xxiii, p. 354.
[2] 'Comptes rendus,' 1873, p. 1000 and 1377, 1874, p. 357.
[3] 'Vierteljahrs. fur Zahnheilkunde,' 1873.
[4] 'Wien. Sitzungs.,' 1872, Abth. iii.
[5] 'Giorn. del. R. Accademia di Torino.'

the œsophagus are due to the direct excitation of the succesive muscular fibres by the contraction of those preceding them, since a ligature may be applied to the œsophagus, or it may be cut across with a knife, or a moderate-sized piece may be absolutely removed, yet the peristaltic movement will still be propagated. Section of the spinal cord, just below the medulla, has no effect, nor is any effect produced by irritating the cœliac ganglion or the cervical ganglia of the sympathetic, or the hypoglossal, facial, glosso-pharyngeal, or accessory nerves. On the other hand, movements can be immediately called forth by irritating the pneumogastric, whilst section of the pneumogastric paralyses the œsophagus. Hence Mosso maintains that the peristaltic movements of the œsophagus originate in some excitation of the fauces, which is carried by sensory nerves to the medulla oblongata. In this there is a reflex centre, which sends forth a series of impulses that cause a succession of co-ordinated movements in the œsophagus, following one another from above downwards. Mosso finds that, if the pneumogastrics be divided the peripherical stump retains for several days its power of exciting contractions in the œsophagus—an unusually long period for a nerve to retain its vitality after section—and in like manner the œsophagus long remains excitable after death if preserved in a moist chamber (4½ hours in dogs and 3 hours in cats). Toussaint[1] read a paper on the mechanism of rumination at the meeting of the French Academy for the Advancement of Science. He has taken tracings of it, and regards it as an effect of atmospheric pressure.

*Stomach.*—It is generally held that there are two kinds of glands in the stomach, one chiefly found in the pyloric region, lined throughout by columnar cells, which secrete mucus; the other, occupying the cardiac extremity, and presenting in their deeper parts large gland-cells, by which the pepsin is secreted. The microscopical investigations of Klein,[2] however, seem to show that between the two extreme forms every intermediate variety may be met with. The observations of Grutzner and Ebstein[3] seem to demonstrate the same thing from a physiological point of view. These experimenters placed the stomach of a dog in a current of water for twenty-four hours, and then prepared infusions of different parts with a 0·2 per cent. solution of hydrochloric acid. They found that similar infusions of the pyloric and cardiac portions, when made to act upon a gramme of boiled white of eggs, dissolved the following proportions:

| | | | | | |
|---|---|---|---|---|---|
| Peptic mucous membrane | fresh | dissolved | 0·618 | gramme of | albumen. |
| | washed for 24 hrs. | „ | 0·505 | „ | „ |
| Pyloric mucous membrane | fresh . . . | „ | 0·240 | „ | „ |
| | washed for 24 hrs. | „ | 0·209 | „ | „ |
| Hydrochloric acid alone . . . . . . | | „ | 0·188 | „ | „ |

The infusion was most active when to one drachm of it from five to twenty drachms of hydrochloric acid, containing 0·1 per cent. of acid, were added.

By spreading out and drying the membrane, and then shaving off the

[1] Aug. 24, 1874.
[2] 'Stricker's Manual of Human Histology,' Syd. Soc. Trans., vol. i.
[3] 'Pflüger's Archiv,' B. vi, p. 1, and B. viii, p. 617.

inner half, they showed that the deeper parts of the glands contain more pepsin than the superficial. In a particular experiment the infusion of a piece of the membrane of a certain size dissolved 0·341 of a gramme of boiled white of egg; the infusion of the superficial half of a similarly sized piece, when shaved off, dissolved 0·252 gramme, and the deeper part 0·511 gramme.

Braun[1] gives evidence to show that the stomach secretes the gastric juice, not intermittingly, but continuously. He has not been able to decide whether division of one or both splanchnics causes increase of the secretion of the gastric juice, since, though this occurred once or twice in a well-marked manner after such division, yet it also sometimes occurred in the course of his experiments without appreciable cause.

R. Lepine,[2] from experiments made with a view of determining whether the peptic cells of the stomach secrete an acid, has satisfied himself that the acid is thrown out on the free surface, and is not formed in the cells.

J. Etzinger[3] shows that bone-dust, cartilage, and tendon, are all capable of undergoing digestion, since under their use the amount of urea rises.

Moriggia[4] has shown, from the examination of more than 100 embryos, chiefly of cattle, that the stomach possesses a digestive power on its own tissues at the sixth and fifth, and even at the fourth and third, months of fœtal life. The salivary glands, however, have no action at birth. This, however, is contested by Schiffer and Korowin.[5] The bile-forming power of the liver begins early. Moriggia finds liquor amnii constantly in the stomach, and amniotic epithelium constantly in the meconium; hence he thinks the fluid is constantly swallowed.

See also v. Lüttich,[6] C. Greve,[7] O. Nasse,[8] and v. Wittich.[9]

*Intestines.*—Mr. Watney[10] finds connective-tissue-corpuscles amongst the columnar epithelial cells of the intestinal tract of many animals (monkey, sheep, cat, dog, rat, rabbit). The cells are round and nucleated, and there is a delicate reticulum observable which is continuous with that formed by the most superficial layer of connective-tissue-corpuscles—basement membrane. This is the case at the pyloric end of the stomach, on the villi over Peyer's patches, and in Lieberkühn's glands. The lining endothelium of the lymph-vessels of the mucosa is in anatomical continuity with the reticulum of nucleated cells, so that it may be said the endothelial cells of the lymphatic vessels are only transformed connective-tissue-corpuscles. In animals killed during the absorption of fat (cream) the fat can be seen in preparations stained by

[1] 'Eckhard's Beiträge,' Band vii, p. 27. [2] 'Gazette Méd.,' 1873, No. 51.

[3] 'Zeitschrift f. Biologie,' B. x, 1874, p. 84; "Ueber die Verdaulichkeit der leimgebenden Gewebe." See also a paper without name in idem, p. 59, "Ueber die Aufnahme des Pflanzenschleimes und des Gummi's aus dem Darm in die Säfte."

[4] 'Rivista Clinica,' 1873. [5] 'Centralblatt,' 1873, p. 398.

[6] "Ueber den Mechanismus des Brechactes," Inaug. Dissert., abstract in 'Centralblatt,' 1874, p. 729.

[7] "Studien uber den Brechact," 'Berlin Klin. Wochenschrift,' 1874, No. 28.

[8] "Ueber die Fermente," abstract in 'Centralblatt,' 1874, p. 543.

[9] "Noch einmal die Pylorusdrüsen," 'Pflüger's Archiv,' 1874, B. viii, p. 444.

[10] 'Proceed. Roy. Soc.,' 1874, vol. xxii, p. 293.

osmic acid as small black particles—1st, arranged in lines between or around the epithelial cells; 2ndly, in the basement membrane; 3rdly, in the connective-tissue stroma of the villus, whence it can be traced into the lymph-vessel. This indicates, he thinks, that the fat is absorbed by the processes of the connective tissue which exist between the epithelial cells and thence finds its way by the connective-tissue stroma to the lymph-vessel. The reticulum of the nucleated cells of the mucosa forms a special sheath to the vessels and unstriped muscular tissue. Mr. Watney adds a few words on the state of the mucous glands of the tongue, when at rest and during secretion. V. Braam Houckgeest[1] has investigated the question of the mode of action of the splanchnics in inhibiting the movements of the intestines, whether directly or indirectly, through their action on the vessels or not, and pronounces decidedly in favour of the former view, since when the intestines were placed in a warm weakly saline solution the movements could be arrested without the intestines becoming pale. S. v Basch[2] believes he has been able to show that the restraining influence of the splanchnics upon the movements of the intestine is not due to any direct inhibitory action on the muscular tissue, but to their vaso-motor power, in consequence of which the vessels, being contracted, cease to convey or convey in but small proportion the agents exciting the intestines to contract. Ludwig v. Thanhoffer[3] has given an elaborate account of the epithelium of the intestinal canal, which he has examined both in frogs and in mammals. He finds the cells have open mouths at their free extremities; the margin is thickened and highly refractile, and when looked down upon vertically the bright borders (wahre Basalsaüme) of adjoining cells seem to be continuous and to form a mosaic. The thickness of the basal border varies in different cells. Brettauer and Steinach described this border as splitting up into ciliaform processes, but v. Thanhoffer maintains that these are altogether distinct from the true basal border, being situated immediately to its inner side, and being projections of the protoplasmic contents of the cells. In frogs the processes are longer, and in winter he has observed them performing active movements, the effect of which was to favour the entrance of oil globules into the mouth of the cells. Bile and fat in emulsion seemed to excite the movements of the processes, water to arrest them. At their attached extremities the cells appear to be connected with two processes, one of which is continuous with the connective-tissue-corpuscles of the matrix of the villi, whilst the other presents the closest resemblance in form, connection, and chemical character, with nerve-tissue, and penetrating the foot of the cell may be traced to the nucleus. The peculiar *cup cells*, thought by Letzerich to be the true commencement of the absorbents and by Schultze to be mucus-glands, V. Thanhoffer regards as ordinary columnar cells, modified only by certain physiological processes. He describes both longitudinally and circularly arranged muscular fibre-cells as existing in the villi. Charles Williams[4] shows by experiments on the passage of oil through plaster of Paris under pressure that alkalies and the like favour its absorption,

1 'Pfluger's Archiv,' B. viii, p. 163. 2 'Wiener med. Jahrb.,' 1874, p. 45.
3 'Pfluger's Archiv,' 1874, p. 391. 4 'Bost. Med. and Surg. Journ.,' May, 1874.

whilst acids oppose it. Paschutin[1] has made a series of researches on the fermentative operations of the intestinal mucous membranes. He obtained the fluids partly by Thiry's method, partly by infusion of the membranes. He finds that infusion of the small intestines is capable of converting starch paste into sugar in the course of a few hours, but acid fermentation then sets in, and the quantity of sugar formed diminishes. Raw starch is converted very slowly into sugar by the infusion, and at 32° F. the action ceases altogether. It is necessary that a certain proportion should exist between the starch paste and the fluid, as if the former is in great excess no action is observed to take place. Experiments with saliva showed that its activity continued unaltered up to 130° F., it then began to diminish slowly to a temperature of about 145° F., and then rapidly till at 148° F. it almost ceased unless the action was continued for some time. It entirely ceased at a temperature of 163° F. Previous exposure to warmth diminished the activity of the saliva in proportion to the duration of such exposure. Saliva frequently filtered and preserved under mercury for six months still retained its activity. The saccharifying ferment of the small intestine completely loses its activity at a temperature of 148° F. Infusion of pancreas behaves like undiluted saliva. The whole length of the small intestine in dogs, rabbits, pigs, and other animals, secretes two ferments, one which converts starch into sugar, the other which converts cane sugar into grape sugar. He has been able to separate the two ferments from one another; the ferment converting cane into grape sugar is absent in sheep and calves.

M. Pettenkofer and C. Voit[2] show that a large quantity of starch can be converted into grape sugar and absorbed in the alimentary canal of the dog, every 2·2 lbs. of the body weight being capable of absorbing 230 grains of starch, which is more even than a fat ox will take up. The absorbed sugar splits up completely into carbonic acid gas and water. These experiments seem to demonstrate clearly, first, that fat can be formed from the metamorphosis of carbohydrates in the body, to which, indeed, many other facts seem to point; and secondly, that it proceeds from the disintegration of the albuminous compounds, 100 parts of meat yielding 11·22 parts of fat. Weiske and Wildt[3] have made experiments to demonstrate that fat can be formed in the economy, not only, as Voit and Pettenkofer have shown, from albuminous compounds, but also from the carbohydrates. See also J. Forster,[4] G. Bunge,[5] John Kurtz,[6] and Czerny and Latschenberg.[7]

[1] 'Archiv f. Anatomie und Physiologie,' 1871, p. 505.

[2] 'Zeitschift f. Biologie,' 1873, B. ix, p. 435-540; "Ueber die Zersetsungs-vorgänge im Thierkörper bei Futterung mit Fleisch und Kohlehydraten und Kohlehydraten allein."

[3] 'Zeitschrift f. Biologie,' 1874, B. x, p. 1-20.

[4] "Versuche über die Bedeutung der Aschenbestandtheile in der Nahrung," 'Zeitschrift f. Biologie,' B. ix, p. 297.

[5] "Ethnologischer Nachtrag zur Abhandlung über die Bedeutung des Kochsalz, &c.," 'Zeits. f. Biologie,' 1874, B. x, p. 111.

[6] "Ueber Entziehung von Alkalien aus dem Thierkorper," abstract of Inaug. Dissert. in 'Centralblatt,' 1874, p. 569.

[7] 'Virchow's Archiv,' B. lix, page 161, and translation in 'London Med. Record,' 1874, p. 145.

## II.—LYMPHATIC SYSTEM.

By far the most important paper on the lymphatic system that has been published since the appearance of Teichmann's beautiful plates are those of Klein[1] on the minute anatomy of the serous membranes, and upon the lymphatics of the lungs. In the former paper, which embodies the results of inquiries made in connection with certain pathological investigations at the Brown Institute, Dr. Klein gives—(1) a detailed description of the epithelium of the free surface; (2) an account of the cellular elements of the matrix; (3) the distribution and relations of the lymphatic vessels, as well as their development; and, lastly, the disposition of the blood-vessels. He shows, in regard to the epithelium, that it does not everywhere consist of flattened hyaline cell-plates, but that in many parts it presents the characters of what he terms germinating epithelium, the individual cells being polygonal, granular, and nucleated. Such epithelium exists abundantly in the omentum of rabbits, the pleura mediastini of dogs, and the mesogastrium of frogs. Such cells, with hour glass and with numerous nuclei, and evidently in process of growth, are found upon trabeculæ, containing blood-vessels surrounded by fat. In the frog the cells are sometimes ciliated. In regard to the cells of the ground substance, he recognises (in the omentum of the rabbit) two kinds of lymphangial structures—(*a*) Patches of cells more or less flattened and branched, multiplying by division and producing free lymphoid cells. The branched cells lie in the lymph-canalicular system, together with the lymphoid cells. In these patches blood-vessels, at first absent, gradually appear in large numbers. The branched cells may undergo conversion into fat-cells. (*b*) Patches and tracts, the matrix of which consists of a reticulum, the meshes of which contain a variable number of lymphoid corpuscles. These also contain blood-vessels. The relations of the veins to the lymphatics, in which they are shown to be invaginated, are minutely described. In regard to the origin of the lymphatics, he describes them as commencing in a lymph-canalicular system of irregular stellate cavities, in which cell-like masses of protoplasm are contained. He distinguishes two kinds of stomata, *stomata vera* and *stomata spuria*, and shows that by means of the former a communication is established between the interior of the serous sacs and the lymphatics. Upon the whole he appears to demonstrate satisfactorily that the serous membranes are simple or unravelled lymphatic glands, and are subservient, besides the other purposes they fulfil to the formation of lymph-corpuscles, and therefore probably of blood. G. Leopold[2] describes separately the lymphatics of the mucous membrane of the muscular and serous coats of the non-pregnant uterus. He shows that there are very fine trabeculæ in the mucous membrane, covered with endothelium, the interspaces of which form the lymph-spaces. The blood-vessels are enclosed in delicate endothelial sheaths. The muscular tissue of the

[1] 'The Anatomy of the Lymphatic System. I. The Serous Membranes.' Pp. 98, with 10 plates. 'Proceed. Roy. Soc.,' Jan. 29, 1874.

[2] 'Archiv f. Gynæcol.,' Bd. vi, p. 1; "Die Lymph-gefässe des normalen nicht schwangeren Uterus."

uterus presents lymph-vessels and lymph-spaces; the latter are lined by endothelium, and lie between the muscular bundles. The lymphatic-vessels form a rich plexus in the outer layers. The lymphatics of the serous layer form groups of vessels on the anterior and posterior surfaces of the organ in man, with large dilations. J. Arnold[1] has described a system of vessels connecting the blood-vessels with the true lymphatics in various parts of the body, and particularly in glandular organs. The intermediate system of vessels present irregular dilatations, and it is to their distension that the swelling in venous stasis and œdema is due. The diapedesis of the red corpuscles, or apparent passage of the red corpuscles through the walls of the blood-vessels, is simply the escape of corpuscles through openings in the vascular wall into the intermediate channels. Hammarsten[2] gives the results of careful investigation upon the quantity of gases contained in the lymph of the dog. One of his analyses of pure lymph from one extremity of the animal gave—total gases 37·10 per cent. by volume, which was composed of N 1·20, O 0·08. $CO_2$ obtained without addition of acid, 18·22 $CO_2$; after addition of acid, 17·60; total $CO_2$, 35·82. Schwalbe[3] has examined the lymphatics of the retina and of the vitreous, F. Morano those of the choroid, G. Thin[4] those of the cornea, Bowditch[5] those of the fasciæ. Schwalbe finds that both the veins and capillaries of the retina are invested by lymphatic sheaths, but not the arteries. The sheaths can be injected for about one sixth of an inch from the optic papilla. There is also a lymphatic sac into which injection percolates between the vitreous and membrana limitans retinæ. The central canal of the vitreous is in some instances filled with injection. The injection proceeds from the inner optic nerve sheath, which, again, is in connection with the general lymphatic system. Morano has observed lymphatic sheaths investing the capillaries of the choroid, and, like Arnold, describes a system of vessels connecting the blood-vessels and lymphatics. Paschutin[6] examined the flow of lymph from the fore limbs of dogs, and gives the steps of the necessary dissections. He finds it is the result of a secretory process, not of mere transudation, and that it is most abundantly formed during active motion. After poisoning with woorara, the rapidity of secretion increases, reaches its maximum in forty or fifty minutes, and then gradually decreases. Increased blood supply to the limb does *not per se* cause increased secretion of lymph, an important result which is in opposition to generally received opinions. An increased temperature accelerates the outflow. Analysis of the lymph, with the object of showing the percentage amount of fixed residue, showed that it varied from 2·61 to 6·55 per cent. N. Emminghaus,[7]

[1] 'Centralblatt,' 1874, No. 1.

[2] 'Ludwig's Arbeiten,' 1872, B. vi, p. 121; "Ueber die Gase der Hundelymph."

[3] 'Leipziger Physiolog. Arbeiten,' Band vii, 1872.

[4] 'Proceed. of the Amer. Acad. of Arts and Sci.,' Feb. 11, 1873.

[5] 'Lancet,' Feb. 14, 1874.

[6] 'Ludwig's Arbeiten,' B. vii, 198; abstract by Stirling in 'Humphry and Turner's Journ. of Anat.,' vol. viii, p. 199.

[7] 'Sächs. Acad. Sitzungsber.,' 1873, p. 396-448, and 'Ludwig's Arbeiten,' 1874, Band vii, p. 51.

in experiments made to show the dependency of the secretion of lymph upon the blood current, corroborates Paschutin's statement that the rapidity of the lymph current is, on the whole, but little altered by frequently emptying the vessels artificially. He finds that the secretion of lymph is arrested when the roots and trunks of the lymphatics are filled to a certain degree. The active congestion caused by section of the vaso-motor nerves does not cause any increase in the secretion of lymph. Ligature of the main vein of a part causes the formation of from four to six times the previous volume of lymph, and the composition of the lymph is altered. A certain number of white corpuscles appear in it, and its soluble constituents are diminished. Under normal conditions but little lymph is secreted in the skin and subcutaneous fat. It is only when the vital relations of the tissues to each other are altered, or any obstacle to the return of venous blood occurs, that lymph is produced in quantity.

### III.—BLOOD.—CIRCULATION.

MM. Paquelin and Jolly,[1] in a paper recently published, state that, in a memoir already presented to the Academy of Sciences (10th March, 1873), they demonstrated—1, that iron exists in the red blood-corpuscles in the form of tribasic phosphate of the peroxide; 2, that the colouring matter of the blood (hematosine) does not contain iron. They now give the details of the extraction and purification of hematosine, and propose two methods for its extraction; and, in order to remove the iron, they dissolve the impure hematosine in ten times its weight of acetic acid, adding to the liquid a quantity of citric acid amounting to one fourth of the acetic acid employed. The whole being slightly warmed, some water is then added, and the whole brought to and kept at the boiling-point for fifteen minutes. On cooling, the liquor becomes cloudy by precipitation of the hematosine, and ammonia is added drop by drop to neutralise the acid. After a few days the hematosine is found at the bottom of the vessel, forming a soft resinous layer. The superjacent liquid, on the addition of ammonium hydro-sulphate, deposits a black precipitate of iron sulphide. The hematosine dissolved in ether, when evaporation is allowed to take place, appears in the pure state as a black, shiny, and friable substance. It burns without leaving any ash, and is insoluble in pure water; it is soluble to a small extent in a dilute solution of ammonia, to which it gives a pale-yellow tint. It is altered by solution of caustic potash and soda, to which it gives a brown tint. It is slightly soluble in alcohol, the solution having an amber colour. It dissolves readily in ether, chloroform, benzine, and carbon disulphide. See also Quinquand,[2] H. Struve,[3] Béchamp,[4] and Schmidt.[5] M. Malassez[6] has carefully investigated the number of

[1] C. Paquelin and L. Jolly. "Sur la Matière colorante du Sang (hématosine)." Séance de l'Acad. des Sci. de Paris, Oct. 19, 1874. (Reported in 'La France Médicale,' October 28.)

[2] "Variations of Hæmoglobin in the Zoological Series," 'Comptes rend.,' 1873, p. 487, and 'Lond. Med. Rev.,' No. 30, 1873.

[3] "Ueber zwei verchiedenen Blut-farbstoffe," 'Virchow's Archiv,' 1872, p. 423.

[4] 'Comptes rendus,' t. lxxviii, 1874, p. 850, "Sur la Matière Colorante rouge du Sang."

[5] 'Centralblatt fur die Med. Wiss.,' 1874, p. 725, "Ueber die Dissociation des Sauerstoffshämoglobins."

[6] Pamphlet, 1864.

corpuscles in the blood, and finds that it varies considerably in different regions, and this is owing either to a real or an apparent increase or diminution. Thus, the number is really less in the hepatic blood, owing to their destruction in the liver, and apparently less in the mesenteric veins during digestion, owing to absorption of fluid. It is really increased in the blood of the splenic vein, owing to their formation in the spleen, and it is apparently increased in the skin, glands, &c., owing to evaporation or elimination of fluid for the purposes of nutrition.

Arnold[1] has studied the phenomena of diapedesis, or the passage of the blood-corpuscles through the walls of the vessels after ligation of the veins (frog's tongue). He has distinctly seen the escape of the *red* as well as of the white corpuscles, and describes the process very minutely, together with the alterations the corpuscles subsequently undergo. They sometimes enter the lymphatics, but he has never observed their entry into the blood-vessels again. Thoma[2] has investigated and describes fully the passage of the white corpuscles of the blood from the blood into the lymph-vessels. He, with Arnold, admits the existence of stomata, or preformed passages, in both sets of vessels. Purves[3] maintains that the white corpuscles escape from the blood-vessels through the interspaces of the endothelial cells. Faber[4] relates observations which have led him to ascribe vital contractility and the power of locomotion to the red blood-corpuscles of man. His observations were first made on blood-corpuscles contained in the urine of a patient suffering from Bright's disease, and afterwards on blood exposed to a temperature a little over 100° F.

It has long been known that in the process of bleeding to death, though several vessels may have been simultaneously opened, a relatively large proportion of blood remains in the smaller vessels of various organs. Welcker proposed to estimate this quantity by washing out the vessels thoroughly with pure water, and comparing the colour of the washings with certain standard test solutions previously prepared by the dilution of known quantities of blood with definite quantities of water. Brozeit has recently made use of another method suggested by v. Wittich; he obtains the hæmatin from a definite quantity of the blood by means of ether and hydrochloric acid, and this constitutes a standard. The quantity obtained from a measured quantity of the washing is then ascertained, and the amount of blood in the washings is then easily determined. Steinberg,[5] having noticed that some difficulty exists in estimating the fine shades of colour in Welcker's colorimetric method, dilutes a definite quantity of the natural blood of the animal till a green colour appears in the *spectrum*. The washings are diluted till the same band is developed, and data are thus obtained for the calculation of the amount of blood contained in the washings. Carrying out this plan Steinberg finds that the total quantity of blood in the rabbit is $\frac{1}{12 \cdot 3}$ to $\frac{1}{13 \cdot 3}$ of the weight of its body. In the guinea-

[1] 'Virchow's Archiv,' 1873, B. lviii, p. 203-254.
[2] 'Centralblatt,' 1874, p. 364, abstract of an Habilitationschrift.
[3] Abstract in 'Centralblatt,' 1874, p. 654.
[4] 'Archiv der Heilkunde,' 1873, B. xiv, p. 481-511.
[5] 'Pflüger's Archiv,' Band vii, p. 101.

pig the weight of the blood to that of the entire body is as 1 : 12·0—12·3; in an adult dog as 1 : 11·2—12·5; in a puppy as 1 : 16·2—17·8; in an adult cat as 1; 10·4—11·9; in a kitten as 1 : 17·3—18·4; and in an adult fasting as 1 : 17·8.

Alex. Schmidt[1] has published the results of numerous further researches he has made on the composition and mode of formation of fibrin. He contends for the individuality of his *fibrino-plastic* substance (paraglobulin), which Brücke had called in question. It falls from its alkaline solution on exact neutralization with acetic acid. 100 ccm. of the blood-serum of the ox contains from 0·72—0.8 gramme of paraglobulin; the serum of the blood of the horse contains 0·31 to 0·56 gramme in 100 ccm. It is soluble in acetic acid, solution of soda, and other neutral alkaline salts. It dissolves in water when either oxygen or carbonic acid gas is transmitted through it, and when dissolved by either gas it is precipitated when the other is transmitted through the fluid. Schmidt's *fibrinogenous* substance does not fall on exact neutralization, but requires an excess of acetic acid. Schmidt describes, in addition, a third substance as necessary to the formation of fibrin—namely, *fibrin-ferment*. This is not preformed in the blood, but is developed in it after its removal from the body, for blood allowed to flow from the vein into alcohol gives no active ferment. The relative proportion of the ferment continues to increase till coagulation is completed. It can be precipitated with other substances from blood serum by the addition of a large volume of alcohol, and can be obtained in a state of purity by evaporating the precipitate to dryness and extracting with cold water. The ferment does not proceed either from the red or white corpuscles of the blood. Schmidt no longer thinks the red blood-corpuscles are rich in fibrino-plastic substance, but believes that the hæmato-crystallin they contain has a special power of hastening coagulation. This is an example of the so-called action by contact, and is shared with hæmato-crystallin by carbon, platinum, asbestos, and animal ferments.

Falk,[2] having observed that the blood in the capillary vessels does not coagulate after death, set himself to determine the reason, and attributes it to a deficiency in the amount of fibrinogen present. The gases of the blood, he thinks, play no part in the matter. Smee[3] endeavours to show that the coagulation of the blood takes place in obedience to a purely physical law, namely, the power of soluble colloid matter, whether organic or inorganic, to pectize or, in other words, spontaneously to coagulate. Zielonko[4] and Plosz and Tiegel[5] have obtained a sugar-producing ferment from the blood. N. Gréhant[6]

[1] 'Pflüger's Archiv,' Band vi, 1872.

[2] 'Virchow's Archiv,' B. lix, 1873, p. 26.

[3] 'Humphry and Turner's Journal of Anatomy and Physiology,' 1873, p. 210.

[4] 'Centralblatt f. d. Med Wiss.,' 1874, p. 609, "Zur Frage von der Bildung homogener Membranen und Fibrins bei Einfuhrung der Hornhaut in den Lymphsack des Frosches."

[5] 'Pflüger's Archiv,' B. vii, 1873, p. 391.

[6] 'Comptes rendus,' t. lxxv, p. 495, and 'Journ. of Chem. Society,' abstract by Brunton, 1872, p. 1030.

demonstrates that normal arterial blood does not contain as much oxygen as it can take up. The blood of the carotid of a dog contains 16·3 per cent. of O; if the animal be made to breathe oxygen the proportion rises to 23·3 per cent., whilst blood saturated with oxygen by agitation contains 26·8 per cent. See also Haro[1] and P. Bert.[2] Nedsvetski[3] has observed very minute spherical bodies in the blood, capable of executing movements of locomotion and of undergoing changes in their form. He has named them hæmococci. M. Rouget[4] has given a very full account of the development and structure of the blood- and lymph-capillaries. His observations have been made upon the larvæ of various species of batrachians under the influence of woorara, and on the embryonic structures of the sheep, rabbit, dog, and cat. He found that solid protoplasmic processes are thrust forth from previously existing blood-vessels and lymphatics. The points of adjoining processes meet and fuse, and thus form the rudiment of a new capillary, which, by continuous growth, elongates, but still remains impermeable. After a time vacuolæ form in the process, and it thus becomes hollow. The young capillaries in the batrachian larva soon acquire a perforated sheath, composed of pigmented cells, the cells being, in fact, modified white corpuscles charged with pigment, which have wandered out of the vessel, and have, so to speak, settled down like parasites upon the vascular wall, because they there find a plentiful supply of food.

See also Jänisch,[5] Kollmann[6] and Dr. J. Blake.[7] Wilbouchewitch,[8] L. Landois,[9] O. Lassar,[10] Dr. Cappie.[11]

The development of bacteria and micrococci in the blood in disease, which will be referred to in one of the other sections of this volume, has been discussed by Eberth,[12] O. Wolff,[13] Onimus,[14] Clementi,[15] Küssner,[16] Osler and Schäfer,[17] Chameau,[18] Birsch-Hirschfeld,[19]

[1] "Essai sur la Transpirabilité du Sang," 'Gaz. hebdom. de Méd. et de Chir.,' 1873, p. 236.

[2] "The Capacity of Blood for Oxygen at different Temperatures," in Soc. de Biologie, 'Gaz. Méd. de Paris,' No. 2, 1874.

[3] 'Centralblatt,' 1873, No. 10, p. 147.

[4] Brown-Séquard's 'Archives de Physiologie,' t. v, 1873, p. 603.

[5] "Inorganic Constituents of Blood," abst. in 'Journ. of Chem. Soc.,' Sept. 1872.

[6] "Bau der rothen Blutkorperchen," 'Siebold und Kölliker's Zeits.,' B. xxiii, p. 462.

[7] "On the Action of Inorganic Substances when introduced directly into the Blood," 'Humphry and Turner's Journal of Anatomy,' vol. vii, p. 201.

[8] "De l'influence des préparations mercurielles sur la richesse du Sang en globules rouges et en globules blancs," Brown-Séquard's 'Archives de Physiologie,' 1874, p. 509—538.

[9] "Auflosing der rothen Blutzellen," 'Centralblatt f. d. Med. Wiss.,' 1874, p. 419.

[10] 'Pfluger's Archiv,' 1874, B. ix, p. 44.

[11] "Relation of the Cranial Contents to the Pressure of the Atmosphere," 'Edin. Med. Journal,' Aug. 1874.

[12] 'Centralblatt f. d. Med. Wiss.,' 1873, p. 113.

[13] Idem, p. 114, 130, 497.

[14] 'Gaz. Hebdomad.,' 1873, Nos. 10 and 11.

[15] 'Centralblatt fur die Med. Wiss.,' 187[illegible], p. 705.

[16] Idem, p. 500.

[17] Idem, p. 577.

[18] 'Comptes rendus,' t. lxvi, p. 1092.

[19] 'Archiv d. Heilkunde,' B. xiv, 1873, p. 193-240.

Popoff,[1] Orth,[2] Hiller,[3] Schäfer,[4] Martini,[5] Billroth,[6] Heiberg,[7] and Paschutin.[8]

Mr. A. H. Garrod [9] finds that the length of the *cardio-systole*, or interval between the commencement of the systole and the closure of the aortic valve in each cardiac revolution, is constant for any given pulse rate, and that it varies as the square root of the length of the pulse beat only. He finds, also, from the sphygmographic trace at the wrist, that the length of the *sphygmo-systole*, or interval between the opening and closing of the aortic valve in each cardiac revolution, is constant for any given pulse rate, but varies as the cube root of the length of the pulse beat. By measurements of sphygmograph tracings from the carotid in the neck and the posterior tibial at the ankle Mr. Garrod shows that the length of the sphygmo-systole in those arteries is exactly the *same* as in the radial. The period occupied by the ventricle in elevating the pressure of the blood in its interior to that of the blood in the aorta, which may be calculated from the above, he terms the "syspasis." Its length is found to be constant for any given pulse rate, but to decrease very rapidly with increase in rapidity of the heart's action, becoming *nil* when that reaches 170 per minute. Mr. Garrod describes a double sphygmograph for taking simultaneous tracings of two distinct vessels, as the radial and posterior tibial. The results of experiments made with this instrument show that there is an appreciable *acceleration* of the movement of the pulse wave as it gets farther from the heart. Dr. Galabin,[10] after commenting on the variety of opinion that exists in reference to the cause of the several waves that appear in sphygmographic tracings, proceeds to describe the two secondary waves seen in the descending stroke. The first of these he terms, with Mohamed, the tidal wave; the second, the dicrotic wave. The first he regards as the result of the inertia of the instrument, the second he refers to the inertia of the arterial walls. See also Sée,[11] and Lutze.[12] Fick [13] has made a series of experiments with a manometer and revolving-drum tracing apparatus on dogs, to determine the causes and amount of the differ-

[1] 'Wien. Med. Jahrb.,' 1872, p. 414.

[2] 'Virchow's Archiv,' 1873, B. lviii, p. 437.

[3] 'Allgemein. Medic. Cent. Ztg.,' 1874, Nos. 1, 2, and 23, and 'Centralblatt f. d. Med. Wiss.,' 1874, p. 833.

[4] 'Centralblatt,' 1873, No. 37, p. 577.

[5] 'Archiv f. Klin. Chirurg.,' xvi, 1873, p. 157.

[6] 'Versuch einer wissenschaft. Kritik der verschied. Method der antisept. Wundbehandlung,' and good abstract in 'Centralblatt,' 1874, p. 457.

[7] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 561, who refers to cases of keratitis occasioned by inoculation with micrococcus by Nassiloff, Leber, and Dolschenkow.

[8] 'Virchow's Archiv,' B. lix, 1874, p. 490.

[9] 'Proceed. Roy. Soc.,' 1874, vol. xxii, p. 291.

[10] "Causes of the Secondary Waves in the Pulse," 'Journal of Anat. and Phys.,' vol. viii, p. 1.

[11] "Sur la mode de fonctionnement des valvules auriculo-ventriculaires du Cœur," in Brown-Séquard's 'Archives de Physiologie,' 1854, pp. 552–578. This paper is chiefly occupied with the history of the subject.

[12] "Ein Beitrag zur Mechanik der Herzcontractionen," Inaug. Dissert., short abstract in 'Centralblatt,' 1874, p. 718.

[13] 'Verhandlung der Wurzburger Phys. Med. Gesell.,' B. iv, 1873, p. 223.

ence of pressure under which the blood moves in different parts of the system. He finds that in the larger arteries the blood pressure rises very rapidly at the commencement of the pulse wave, and then gradually falls to the normal. The pressure varies to only a slight extent in the right auricle, usually standing at zero, that is, at the pressure of the atmosphere. The action of the heart has little influence upon it, and it is somewhat remarkable that the contraction of the right ventricle has more effect in augmenting the pressure in it than that of its own walls. The respiratory movements cause distinct variations of pressure in the right auricle, expiration causing it to augment, and inspiration to fall as much as 10 mm. of mercury below zero. When the manometer was connected with the interior of the right ventricle the pressure rose during its systole to between 18 and 42 mm. of mercury. An important point noticed was that after the systole the pressure fell considerably below zero, which seems to show that the walls expand actively, and exert a kind of aspiratory power. The pressure in the left ventricle at the moment of its systole amounted to 144 mm. of mercury. The pressure rose to the same height in the aorta, but never fell so low as in the ventricle, on account of the closure of the valves. During very rapid action of the heart the pressure in the left ventricle fell below its previous amount. J. Worm-Müller[1] shows that as much as three times the quantity of blood originally present may be injected into the veins of an animal (dog) without materially increasing the blood pressure, and no extravasation occurred. His results are very important in regard to transfusion. Kratschmer showed that if ammonia, ether, and some other powerfully odorous bodies, be held before the nose of a rabbit, the heart's action becomes retarded, and may even be arrested in the course of two or three seconds. Brown-Séquard[2] attributes the inhibitory influence thus exerted to a reflex influence proceeding from the nasal mucous membrane. Knoll[3] also investigated the influence of irritating the vaso-motor nerves acting by reflex paths on the movements of the heart. He repeated and corroborated the results of Kratschmer's experiment of irritating the nasal mucous membrane, showing that such irritation produced irregularities in the heart's action. Knoll, however, noticed that a sudden and considerable rise of blood pressure occurred, followed by retardation of the pulse. He considers that the elevation of the blood pressure in this case is due to a reflex irritation of a vaso-motor centre; the blood pressure never augmented when the cervical spinal cord was divided. His experiments further showed that considerable variations of blood pressure, if sudden—such, for instance, as may be produced by compression of the aorta or irritation of the splanchnics—immediately cause irregularities in the rhythm of the heart's action. Even when the heart is entirely separated from the central nervous system, with intact spinal cord, increase of blood pressure causes diminution of pulse frequency; but when the spinal cord is divided varia-

[1] "Die Abhangigkeit des Arteriellen Drückes, v. der Blutmenge," Sitz. d. Sachs. Gesell. d. Wiss.,' 1873, and 'Ludwig's Arbeiten,' Band viii, p. 159.

[2] 'Archives of Sci. & Pract. Med.,' 1873, p. 90.

[3] 'Wien. Acad. Sitz.,' B. lxvi, 1872.

tions of blood pressure do not alter the rate of its contraction, and he attempts to explain away the opposite results obtained by V. Bezold and Cyon.

Rutherford[1] gives a much simpler and more satisfactory solution of the phenomena observed in Kratschmer's experiment, for he shows that a retardation of the pulse occurs in a rabbit a few seconds after ammonia is held to its nose, and that it is due to the animal holding its breath for a time, since the same retardation occurs at about the same period if the nostrils be pinched, whilst it does not occur if the animal continues to breathe through a cannula introduced into the trachea. The effect observed is therefore due to the state of the blood, which acts on the cardio-inhibitory centre, the stimulus being either the absence of oxygen or the presence of carbonic acid gas. It does not occur if the vagi have been previously divided.

Winiwarter[2] finds that the resistance of the walls of the blood-vessels of the mesentery in health is equal to 70 mm. of mercury.

Tarchanoff[3] obtained contraction of the spleen from irritation of the central end of the divided vagus; irritation of the opposite end had little or no effect. Section of the nerves of the spleen is followed by swelling of the organ and increase in the number of the white corpuscles in the blood, which, however, disappear in a week. M. Bochefontaine[4] discusses the cause of the enlargement of the spleen which Moreau states is consequent upon ligature of the splenic artery, and demonstrates by experiment that whilst ligature of the artery alone is followed by this effect, it does succeed ligature of the splenic plexus of nerves, and is probably the result of a retrograde venous flux, favoured by the abolition of the tone of the vessels and of the spleen itself.

## IV.—RESPIRATION.

Onimus,[5] from electrical experiments on a decapitated animal, has satisfied himself that the external intercostals elevate whilst the internal intercostals depress the ribs. Schiff[6] considers that in normal respiration the respiratory oscillations of the blood pressure are due to rhythmical excitation of the vaso-motor centre in the medulla, which, again, results from a decrease in the amount of oxygen or an increase in the amount of carbonic acid in the blood. In proof of this he adduces the fact that if an animal be made to breathe pure oxygen the respiratory oscillations become less frequent, so that there may only be one respiratory oscillation in pressure for three or four respiratory movements. Occasionally the respiratory curves of the blood pressure are wanting, and this occurs, according to Schiff, when the interval between two respirations is not great enough to occasion an accumu-

[1] 'Humphry and Turner's Journal of Anat. and Phys.,' 1873, p. 283.

[2] 'Wien. Akad. Sitz.,' Bd. lxviii, 1873, "Der Widerstand der Gefasswände im normalen Zustande und wahrend der Entzundung."

[3] 'Pflug. Archiv,' B. viii, p. 97. See also Kusnezoff, 'Wiener Akad. Sitzungsber.,' B. lxvii, p. 58, "Ueber Blutkorperchenhaltige Zellen der Milz."

[4] Brown-Séquard's 'Archiv. de Physiologie,' 1874, p. 698-704.

[5] 'Journal de l'Anatomie,' 1873, p. 442.

[6] 'Cenno sul ricerche,' &c., abstract in 'Centralblatt,' 1872, p. 756.

lation of carbonic acid in the blood, and also when the sensibility of the vaso-motor centre is diminished. S. Setschenow[1] has written a paper on absorptiometry in its application to the state of carbonic acid in the blood, and finds that the hæmoglobin is the constituent of the blood with which the carbonic acid of the *blood-cells* is combined. He has satisfied himself further that serum contains two kinds of material capable of uniting with carbonic acid gas, of which one is not altered by carbonic acid, whilst the other is separated as hæmoglobin, new chemical affinities then coming into play. One of these products of disintegration, endowed with chemical affinities, may be paraglobulin. Ewald[2] produced apnœa by making animals breathe oxygen, and found that the oxygen of arterial blood becomes increased to saturation, that of venous blood diminished, whilst the carbonic acid of both kinds of blood is decidedly diminished. By naturally forced respiration almost complete saturation of the blood may be effected. W. Filehne,[3] Röhrig,[4] Lang,[5] Socoloff,[6] Fick,[7] Nussbaum,[8] Badoud.[9]

Dr. Barlow,[10] in a paper "On the Pneumatic Action which accompanies the Articulation of Sounds by the Human Voice," which is illustrated by a large number of tracings, shows that the articulation of the human voice is accompanied by definite pneumatic actions, and that those actions, many of which are insensible to ordinary observation, are capable of being recorded. The principle of registration is similar to the cardiograph of Marey, consisting in recording the vibrations of a thin membrane placed over the extremity of a trumpet into which the person experimented on speaks. A series of experiments showed that reading 359 syllables pronounced in 86 seconds required the use of 523 cubic inches of air, or about 1½ cubic inch of air for each syllable, and rather more than four syllables per second, including stops. Distinct articulation becomes difficult against a pressure of 2 inches of water, and Dr. Barlow could not pronounce any words against a pressure of 4 inches without considerable exertion. The tracings show an elevation, *i. e.* increased pressure, after each syllable, especially when this contains an explosive vowel. The words "Peter Piper picked a peck of pickled pepper" shows this remarkably well. The difference in the action between whispered sounds and those spoken loud is not so great as might have been expected.

[1] 'Pfluger's Archiv,' B. viii, 1874, p. 1-39. [2] Idem, B. vii, p. 575.

[3] "Ueber Apnoe und die Wirkung eines energischen Kohlensaurestromes auf die Schleimhäute," 'Reichert und Du Bois Reymond's Archiv,' 1873, p. 361.

[4] 'On Cutaneous Respiration and Absorption,' abstract in 'Humphry and Turner's Journal,' by Brunton and Ferrier, vol. vii, p. 188.

[5] "On Effects of Varnishing the Skin," 'Archiv. d. Heilk.,' B. xiii, pp. 277, 1872, abstract in 'Journ. of Anat. and Phys.,' 1873, p. 188.

[6] "On Effects of Suppression of Perspiration," 'Centralblatt,' 1872, No. 44, abstract in 'Journ. of Anat. and Phys.,' vol. vii, p. 188.

[7] "Ein Pneumograph," 'Verh. d. Wurzburg phys. Med. Ges.,' N.F. iii, p. 211.

[8] 'Pfluger's Archiv,' 1873, B. vii, p. 296-300, "Fortgesetzte Untersuchungen über die Athmung der Lunge."

[9] Inaug. Dissert., 1874, abst. in 'Centralb. f. d. Med. Wiss.,' 1874, p. 824, "Ueber den Einfluss des Hirns auf den Druck in der Lungenarterie."

[10] 'Proceedings of the Roy. Society,' April 16, 1874, vol. xxii, No. 152.

*Animal Heat.*—Riegel,[1] from experiments made on rabbits and dogs which had been dosed with woorara till voluntary movement was just lost and then placed in a warm chamber raised to the temperature of their body, has been able to corroborate the statement made by Ackermann, that a remarkable diminution in the temperature of the body occurred when the frequency of the artificial respirations was increased. The temperature was taken in the rectum and in the inferior vena cava, the depth of the artificial respiration remaining always the same.

Albert and Stricker,[2] in their researches on the temperature of the heart and lungs, used two thermometers, one of which was embedded in the substance of the muscular tissue, whilst the other was made to penetrate into the cavity of the ventricle. They found that in the case of the left ventricle the former was from 0·5 to 0·7 C. higher than that of the latter, whilst in the case of the right ventricle the difference was much less expressed. A thermometer introduced through the jugular vein into the right ventricle showed that the blood in the right ventricle was warmest near the apex, and warmer everywhere than that of the right auricle, whilst this again was warmer than that of the superior vena cava. They attribute the increased temperature of the blood in the ventricle to the admixture of the blood of the coronary vein which has circulated through the tissue of the heart. They find further that the blood is somewhat cooled in passing through the lungs, so that the blood of the left side of the heart is cooler than that of the right. Bernard[3] rejects the view of Körner and Heidenhain that the difference between the temperature of the right and left sides of the heart is due to the proximity of the right ventricle to the abdominal organs, on the ground that Hering has found that in a case of ectopia cordis the temperature of the right ventricle, even in this malformation, is higher than that of the left. Weir Mitchell,[4] in a paper on the influence of nerve lesions upon temperature, confirms Waller's views by showing that cold applied to the ulnar nerve in its course produces severe pain and final loss of feeling and of motion in the parts to which the ulnar nerve is distributed. He further shows that after section of a main nerve the parts which it innervates rise in temperature, but apparently lose heat and become permanently cooler after the lapse of weeks or months. When a nerve has been slightly cooled, as in the first stage of the freezing process, the temperature of the tissues related to its terminal filaments falls somewhat, but as the nerve ceases to be painfully affected and anæsthesia comes on the included vaso-motor nerves also cease to be irritated, and under this paralytic influence the heat rises in the ulnar palm from two to four degrees, while the part becomes red and swollen. From various experiments Dr. Weir Mitchell has satisfied himself that the influence of the nerves in causing variations of temperature in the parts to which they are distributed is due, not to any direct influence of the nerves on the tissues, but to variations in the size of the vessels and consequent supply of blood, caused

[1] 'Virchow's Archiv,' 1874, B. lix, p. 396.
[2] 'Wiener Med. Jährbucher,' 1873.
[3] 'Revue Scientif.,' abst. in 'Humphry and Turner's Journ. of Anat.,' 1874, p. 431.
[4] 'Archives of Scientific and Practical Med.,' 1873, No. 4, p. 351.

by palsy or irritation of the vaso-motor nerves. Dr. A. Murri[1] gives the following, amongst others, as the conclusions at which he has arrived in regard to the existence of a regulating power influencing the animal temperature, after careful experimental investigation and study of Liebermeister, Senator, and others. 1. The increase in the amount of carbonic acid observed to occur during immersion in a cold bath is probably only a simple augmentation of exhalation ; there is no evidence of an increased calorification. 2. The increase of temperature observed to occur in the axilla in the cold bath is compatible with a diminution in the amount of caloric previously present in the body, and does not involve the necessity of admitting an increase. 3. Liebermeister's and Konig's means of calometric measurement are inexact, and no more heat is produced in the cold bath than under ordinary conditions. 4. The hypothesis of the existence of a nerve centre which determines the temperature of the body is wholly destitute of foundation. 5. The neuro-pathological doctrine of fever is consequently hypothetical, insufficient, and superfluous ; the chemical theory perfectly explains all the facts. See also J. Schreiber[2] and M. Morren.[3]

## Glands.

The structure of the salivary glands and pancreas has been investigated by V. v. Ebner.[4] He finds that the alveoli of the *pancreas* in the frog form branched tubes provided with lateral pouches that have no distinct lumen, and are bounded by a closed membrana propria. The excretory ducts proceed from fusiform and stellate cells in the interior of the alveoli, forming the so-called centro-acinar cells. Fibrous or membranous processes are given off from the membrana propria and penetrate into the interior of the alveoli, forming by their anastomoses a reticulum that is continuous with the processes of the centro-acinar cells. The gland cells lie in the meshes of this reticulum, one cell, as a rule, occupying each mesh. The gland-cells have no processes. The *parotid* and *submaxillary glands* of the guinea-pig, rabbit, cat, and dog, differ in many particulars from the pancreas, and especially in regard to the connection of the excretory ducts with the alveoli. In the dog and rabbit the centro-acinar cells are entirely absent, though they are present in the parotid in a state of development inferior to that in which they are found in the pancreas. On tracing the ducts inwards the larger ones, lined with columnar epithelium ("salivary tubes" of Pflüger) suddenly give off ducts lined with cubical epithelium (intermediate portion, Schaltstücke of v. Ebner), which after a short course, in which they undergo frequent subdivision, terminate in the alveoli.

Butler Stoney[5] observed in a woman with a parotid fistula that the

[1] 'Del Potere regolatore della temperatura animale,' pamphlet, in 'Lo Sperimentale,' 1873.

[2] 'Ueber den Einfluss des Gehirns auf der Körpertemperatur," 'Pflüger's Archiv,' B. viii, p. 576.

[3] 'La Physiologie des Plantes et la théorie mécanique de la Chaleur.

[4] 'Max. Schultze's Archiv f. Mic. Anat.,' viii, p. 481.

[5] 'Journal of Anat. and Phys.,' vol. vii, p. 161.

movements of mastication alone and the taste of tartaric acid considerably augmented the flow of saliva. Sugar, on the contrary, had little effect. v. Ebner[1] describes a series of small glands at the back of the tongue in man and various animals. They resemble Brunner's glands, and secrete a fluid which contains no mucin. He proposes to call them *serous* glands.

Giannuzzi, Saviotti and others, have described certain fine plexuses and radiating canals, investing the pancreatic alveoli and secreting cells, but Latschenberger,[2] whose views are accepted by Brücke,[3] considers that they only represent lines of injection that have penetrated in the axis of the tubules of the glands and that they are, therefore, artificial.

The view generally accepted of the mode in which the gastric secretion takes place is that it is excited by a stimulus either of a mechanical or of a chemical nature. In opposition to this Braun[4] states that his experiments led him to the belief that the gastric juice, like the urine, is secreted continuously. He experimented on dogs in which he had made gastric fistulæ. Through these, various irritating substances, as sponges, the vanes of feathers, stones, alkalies, and pieces of meat, were introduced, but he found that no variations occurred in the amount poured forth. The alkaline saliva of dogs and men had no greater influence, nor did there appear to be any relation between the amount of alkali excreted in the saliva and of acid in the gastric juice, for neither did the irritation of the salivary gland have any influence on the secretion of gastric juice, nor, when this last was excited to flow, was there any change in the amount or characters of the saliva. Braun opposes the hypothesis of Schiff, that pepsin is produced from peculiar so-called peptogenous organs in the stomach, since even in fasting animals whose salivary ducts are divided a not inconsiderable quantity of gastric juice can be obtained. He is much rather disposed to agree with Spallanzani that the pepsin and acid are continuously excreted. The mucous membrane of the empty stomach is only rarely covered with a tenacious mucus, but much more frequently with a fluid that usually has an acid reaction. The gastric juice, like the urine, is secreted in large quantities when water is injected into the femoral vein, and this is not a simple case of transudation, but the fluid exhibits an acid reaction and digests albuminous substances. At the same time it was often requisite, in order to give the fluid a digestive power, to add some hydrochloric acid to it, which Braun associates with the observation of Manassein, that the acid of the gastric juice is deficient in acutely anæmic animals.

Röhrig[5] has investigated the effects of various conditions upon the secretion of bile. In animals under the influence of woorara there was a progressive diminution in the amount of bile discharged, whilst its concentration augmented. Compression of the vena portæ, with or

[1] Pamphlet, 1874. [2] 'Wiener Akad. Sitzungsbericht,' 1872, Band lxv, p. 195.
[3] 'Vorlesungen über Physiologie,' 1874, p. 325.
[4] 'Eckhard's Beiträge zur Anatomie u. Physiologie,' B. vii, p. 27.
[5] Rohrig, "Experimentelle Untersuchungen über die Physiologie der Gallenabsonderung," in 'Stricker's Med. Jahrbücher,' 1873, p. 241.

without coincident compression of the hepatic artery, caused sudden arrest of the flow of bile, which recommenced to be discharged if the arrest was brief, but not otherwise. Compression of the thoracic aorta immediately above the diaphragm caused considerable diminution, but not complete arrest of the flow of bile, the continuance of the secretion being perhaps due to the presence of anastomosing branches of the intercostal arteries. Other experiments on the vena cava and abdominal aorta showed that the formation of bile is not *entirely* governed by the degree of blood pressure in the capillaries of the liver. Venesection arrested the flow of bile; injection of water into the intestinal canal increased it. Irritation of the mucous membrane of the whole length of the intestinal canal, and of the peritoneal layer in its abdominal part, by various agents was without effect in increasing the amount of the secretion, yet it was augmented by various purgatives; as croton oil, colocynth and jalap, aloes and rhubarb, senna; more feebly by sulphate of magnesia, and still less strongly by castor oil. Section of the splanchnics caused slight increase; section of the spinal cord in the cervical region considerable increase. Reflex irritation of the cord, as by irritation of the crural vein, caused diminution of the flow; with suspension of respiration, the flow diminished.

J. Munk,[1] in a paper on the effects of irritation of the sensory nerves on the excretion of bile, states that Heidenhain and his pupils found that when the spinal cord was directly irritated by electrical currents in the cervical and upper dorsal region, there was first a stage of increase and then a stage in which less bile was secreted. Röhrig, as above stated, irritating the cord in a reflex manner, only observed diminution of the flow, and no preliminary stage of increase, but Munk, repeating Röhrig's mode of experimentation, found that there was a primary stage of augmented secretion. Munk also found that excitation of the splanchnics is followed by the same effect as the direct or reflectorial excitation of the spinal cord.

Plósz[2] has investigated the albuminous substances of the hepatic cells. Fresh sections of liver, he remarks, have always an alkaline reaction, but they soon become acid. In order to investigate the changes that occur, he removes all the fluids naturally present by weak injections of 0·75 per cent. of chloride of sodium. He then minces the tissue and treats it with the same solution. After setting aside and removing the supernatant fluid, he finds that this contains: (1) an albuminous substance, resembling that found by Kühne in muscular fibre, which coagulates at 45° C.; (2) an albuminous nuclein compound, which coagulates at 70° C., resembling that found by Miescher in the nuclei of pus-cells, and then, if the remains of the mince be treated with a 10 per cent. solution of common salt, a myosin-like substance, coagulating at 75° C., is obtained, whilst the remains still contain nuclein.

Liver.—An important paper on the structure and function of the liver has been written by Dr. G. Asp.[3] The animal he selected for observa-

[1] Munk, "Ueber den Einfluss sensiblen Reizung auf die Gallenauscheidung," in 'Pflüger's Archiv,' Band viii, p. 151.

[2] Pflüger's Archiv,' B. vii, p. 371, and abstract, and 'Lancet,' Oct. 18, 1873.

[3] G. Asp, "Zur Anat. u. Physiol. der Leber," 'Ludwig's Arbeiten,' B. vii, 1873, p. 124.

tion was the rabbit. He finds that the *nucleus* of the hepatic cells, often double, but sometimes absent, appears on surface view as a round disc, which towards the centre is rendered hazy by the presence of numerous granules. Its margin is usually formed by a clear area with double contour. When the nuclei are absent the cells present peculiar forms, which Asp minutely describes; he was unable to discover any relation between the presence or absence of the nuclei and the period of digestion. Injections showed that both the liver-cells and the biliary canals can be made to undergo very varied changes of form. In regard to the structure of these minute biliary canals, he finds that outside the columnar epithelial layer is a laminated investment of striated tissue, which is visible in the interspaces of regularly disposed spindle cells. The striæ and the long axis of the spindles are parallel with that of the ducts, and the reactions of this coat seem to show that it is composed of a collagenous tissue. Vessels with such coats may be traced between the cells, and then break up to form a close plexus. He found by the method of injections that whilst Prussian blue only passed as far as, and never into, the cells, solutions of resinous matters, as gamboge in alcohol and turpentine, penetrated the cells themselves, though he is not inclined to believe that any coarse openings between the two exist. In regard to the lymphatics of the liver, Asp confirms the statement made by McGillavry, that in the liver of the rabbit the vessels are surrounded by a lymphatic sheath. In regard to the physiology of the liver, the idea suggested itself that by transmitting an artificial blood current through the liver some light might be thrown upon its functions. The animals were previously placed under the influence of woorara, which was found not materially to interfere with the secretion of bile, and as, during the connection of the tubes for the artificial current, the current of blood through the portal vein had to be arrested for a short time, it was necessary to ascertain the effects of such interruption. It was found that with complete or almost complete interruption very material diminution or entire arrest of the flow of bile occurred, though this again recommenced to be discharged, even after the lapse of ten minutes, when the blood was readmitted, but the re-establishment of the secretion was very imperfect if the arrest of the blood current had lasted for an hour. Further researches showed that blood transmitted through the hepatic artery was capable of maintaining the secretion, and that the composition of the blood would be materially altered without rendering it unfit for forming the secretion.

M. Legros[1] recommends for the demonstration of the biliary canals the simultaneous injection of the blood-vessels and of the biliary ducts. After having experimented on a great variety of animals he finds the liver of the rabbit best adapted for injection. The injection should be made immediately after death, and as little injury should be inflicted on the organ as possible. He warms the liver, and allows the injections to percolate for several hours through the vessels at a very low pressure. He describes the finest biliary ducts passing between the ultimate cells of the liver as being composed of extremely *small flat cells*. He supports the view that the liver is a double gland, of which one, the

[1] Ch. Legros, 'Sur la Struct. et l'Epithel. propre des Canaux Sécrét. de la Bile.'

*glande* or *organe biliaire* of Robin, is composed of a delicate reticulation of tubes, whilst in the meshes of this is a second organ, the glycogenic liver of Bernard, composed of the large glycogen-holding cells.

Dr. Dalton[1] believes that the bile presents a very distinct and characteristic spectrum. He has examined the fresh bile of the ox, sheep, pig, dog, and man. In indicating the measurements of the spectrum he employs Vierordt's method. This consists in taking as fixed points the eight principal lines of the solar spectrum, from A to H. The spaces between these lines are then considered as divided each into 100 equal parts, and the situation of an absorption band is expressed by proportional numbers, counting in the direction from the red to the violet end of the spectrum. The first distinguishing character of the spectrum of bile is that it is *very short*, the light being totally absorbed at a considerable distance from the refrangible end. In the specimens of ox bile, viewed in a thickness of one centimètre, in no case did the spectrum extend beyond the line F in the first quarter of the blue, and in most instances fell considerably short of it. In the human subject it was shorter still. As a general rule, the spectrum was characterised by an absorption band at C. The extension and intensity of this band are proportional to the predominance of green in the colour of the bile. The spectrum of the bile is also distinguished by a diminution or absence of the orange and yellow, and a corresponding extension of the red and green. There are sometimes, also, two other absorption bands, comparatively uncertain and ill-defined, at D and $D_{30}E$. The pure biliary salts in alcoholic solution, treated by Pettenkofer's test, give a spectrum with absorption bands at E and F. In a watery solution, treated by the same test, they give a spectrum with but one absorption band, namely, at E.

Tarchanoff[2] attributes the different results obtained by Kühne and Hermann on one side and Naunyn and Steiner on the other, in regard to the possibility of the biliary colouring matter being formed in the circulatory system from blood-colouring matter, partly to the fact that the former experimenters used dogs, the latter rabbits, and partly to the different modes of testing employed. He appears to agree with Hermann, and thinks that it is so formed, and that it is excreted in the kidneys, but undergoes reabsorption into the blood.

The formation of glycogen has been investigated by several observers. E. Schöpffer[3] injected grape sugar into the veins of the body generally, and into the vena portæ of rabbits. When a moderate quantity of the sugar was injected into the crural vein slowly, nearly all of it reappeared in the urine, but if the same quantity were thrown into the mesenteric vein none was discoverable in the urine. If, however, a large quantity were thrown into the mesenteric veins, or it was injected very rapidly into them, it was in part eliminated by the kidneys. It would appear that this form of sugar is, when transmitted to the liver, converted into glycogen, which is, on chemical grounds, not improbable, since glycogen may be regarded as an anhydride of sugar.

[1] 'New York Med. Journal,' vol. xix, p. 579, 1874.

[2] J. F. Tarchanoff, "Ueber die Bildung v. Gallen-Pigment aus Blut-farbstoff,' 'Pflüger's Archiv,' 1874, p. 53.

[3] 'Archiv f. Exp. Path.,' 1873, i, p. 72.

Pavy and Tscherinoff long ago showed that by increasing the quantity of starch and other carbo-hydrates in the food of animals the amount of glycogen is increased; but the question arises whether the increase is due to the conversion of the carbo-hydrates into glycogen or to the carbo-hydrates being more easily oxidizable, and therefore seizing upon the oxygen, which again leads to the sparing of the glycogen produced from other sources, but thus rendered apparently more abundant. Pavy thought the former alternation occurred, and Tscherinoff (1865 and 1869) and Dock (1872) were disposed to agree with him; Weiss,[1] whilst admitting with Scheremetjewsky that glycogen is not very readily oxidizable, advocates the other view upon the ground of the results of his experiments in which glycerine was given as food to fowls. This is acknowledged to be an easily oxidizable substance, and yet is not at all likely to be converted into glycogen; and he found that when administered largely with the food the quantity of glycogen in the liver underwent great increase, the amount contained in the liver on ordinary diet being max. 0·301, the min. 0·06 gramme, whilst on the glycerine diet the max. was 1·8 gramme and the min. 1·1 gramme. Hence he concludes that the glycerine underwent combustion, and spared the glycogen derived from other sources. Luchsinger[2] has repeated Weiss's experiments on fowls and on rabbits. He points out that Kühne had already indicated the likelihood of the conversion of glycerine into sugar, the improbability of which was the very basis of Weiss's conclusion, and states, as the results of his experiments, that such change does actually take place, and that when given as food it causes an increase in the amount of glycogen present in the liver, not by taking up the oxygen and sparing the glycogen, but by escaping oxidation, in part at least, till it arrives at an organ where its conversion into glycogen is effected.

Georg. Salomon,[3] from experiments made on rabbits, is able to corroborate Dock's statements to the effect that a moderate amount of glycogen is found in the liver of animals placed on a diet of cane sugar. He finds, also, as Luchsinger did, that glycogen is formed on a diet of milk sugar and on glycose or grape sugar, but not on mannite. It is continued to be produced on a gelatine diet; on a diet of neutral fats glycogen is found in small quantity. An abundant supply was obtained from the liver of animals fed on diluted glycerine. This last fact is in accordance with the observations both of Weiss and of Luchsinger.

Legg[4] describes the changes which the liver undergoes after ligature of the hepatic ducts. Boéchat[5] recommends, as the best mode of preparing the *thyroid gland*, that it should be hardened in solution of picric acid, left for a few days in solution of gum, and finally immersed in alcohol. The alveoli of the gland are not closed, rounded vesicles, but irregularly shaped, intercommunicating spaces, the walls of which are in many places formed by a single layer of somewhat flattened epi-

[1] 'Sitzungsberichte d. Wien. Akad,' B. lxvii, Abtheil 3.
[2] 'Pflüger's Archiv,' Band viii, 1873, p. 289.
[3] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 179.
[4] 'St. Bartholomew's Hospital Reports,' vol. ix, 1873.
[5] Pamphlet 'On the Structure of the Thyroid Gland,' 1873, pp. 44.

thelial cells. They are separated by these cells alone from the wide cavernous-like lymphatic spaces. In adult life the cavities are filled with colloid substance which stains with aniline and carmine.

KIDNEY.—Heidenhain,[1] in a paper on the histology of the *kidney*, confirms the statements of other observers that the Malpighian body is provided in the mammalia with a double layer of epithelial cells, one lining the inner surface of the capsule, the other covering the vascular glomerulus and penetrating into the interstices between the vessels. He maintains that the epithelial cells of the tubuli contorti are complicated in structure, a large part of their protoplasm being broken up into a number of fine cylindrical rods which are placed vertically on the tunica propria, and run in a radiating course through the epithelial layer embedded in a very minute amount of structureless ground substance. The rods surround the nuclei, which are placed at regular intervals, and are sheathed with a greater or less quantity of the protoplasm which remains undifferentiated into rods. The greater part of what was formerly described as 'fine granular matter' in the ground substance of the cells is only the optical expression of the sum of the rods seen in section. The epithelium of the broad ascending part of the tubes of Henle agrees with the above, but that of the remainder of the uriniferous tube seems to be quite destitute of the rodlike character.

Rabuteau[2] has investigated the influence of caffeine, coffee, and tea, on the excretion of urea. He found that the ingestion of from two to four grains of caffeine caused a diminution in the amount of urea from a previous five days' average of 22·06 grm. to 19·81 grm., and in another case from 21·34 grm. to 17·26 grm. The quantity of urine diminished with that of the urea. Coffee had a similar and tea a similar but less marked effect. The diet was kept as far as possible the same throughout the experiments.

In experiments by M. Roux,[3] undertaken, like those of Rabuteau, with the view of determining the influence of various kinds of food on the excretion of urea, the results arrived at were as follows :—1. The quantities of urea, of uric acid, of chlorine, and of phosphoric acid, expelled in twenty-four hours by the urine, are very constant under the same system or conditions of alimentation.—2. As long as the amount of urine passed is the same or varies but slightly, the relation of the urea to the chlorine is constant.—3. The ingestion of a large quantity of water does not cause any augmentation in the amount of urea, uric acid, or phosphoric acid, excreted in the twenty-four hours.—4. The acidity of the urine is very notably diminished by the ingestion of a large quantity of water.—5. The quantity of chlorine injected in twenty-four hours increases with the quantity of the urine emitted, and by consequence of the amount of fluid taken.—6. In a subject who is

[1] 'Schultze's Archiv fur Microscop. Anat.,' Band x, and abstract in 'Med. Times and Gaz.,' Aug. 1, 1874.

[2] 'Comptes Rendus,' 1873, t. lxxvii, p. 489—492.

[3] M. E. Roux, "Des Variations dans la Quantité de Urée excrétée avec une Alimentation normale et sous l'influence du Thé et du Café," 'Archives de Physiologie,' Nos. 4 and 5, 1874.

not accustomed to the use of coffee the ingestion of this fluid augments all the solids of the urine.—7. The increase is specially marked in the case of the urea and of the chlorine. The average proportion of chlorine to the urea undergoes no alteration.—8. If coffee be commonly consumed the system becomes habituated to its use, and its effects are less marked; the excretion of the urea and of the chlorine falling to their normal amount.—9. The same conclusions are applicable in regard to tea, only that the effects are less marked with tea and more transient, probably because the dose is weaker.

Müller[1] investigated the effect of excitation of the skin on the secretion of urine in Bernard's laboratory, using large dogs. The hair was shaved off and the urine collected from both ureters and registered by a special instrument. Six experiments were made with ice; cold cloths were placed round the animal. In the course of from ten to twenty minutes an increase of from 23 to 50 per cent. occurred. Then experiments were made with warm cloths; and a diminution of from 50 to 73 per cent. noted. In three other cases water at a temperature of 104° Fahr. was poured over the animal and a diminution of 83 per cent. was observed. Friction applied to the skin gave varying results, mustard poultices and blistering paper caused no noticeable change in thirty minutes. Varnishing of the skin caused slight diminution of the quantity of urine secreted in five out of seven cases.

Reoch[2] finds two pigments in the urine, one red, connected with the uric acid, and one yellow, probably belonging to the indigo family.

The difference in the reaction of the urine in carnivora and herbivora suggested to Morriggia[3] to undertake some investigations to ascertain whether a corresponding difference existed in regard to the sweat, an excretion that offers so many points of analogy to the urine. Experiments on himself and on animals satisfied him that the sweat of herbivora is usually alkaline, that of carnivora usually acid. In both man and animals the urine becomes slightly acid during fasting or when confined to flesh diet, whilst it is alkaline on vegetable diet. The sweat, however, retains the reaction peculiar to the individual, whatever may be the nature of the food. Morriggia finds that it takes a much longer time to change the reaction of the urine from acid to alkaline, or *vice versâ*, by alteration of the diet, than is usually supposed.

F. Schenk,[4] in experiments on the effects of muscular work on the metamorphosis of the albuminous compounds, found severe walking exercise increased the amount of urea about from 75 to 150 grains per diem. In a second set of experiments *no effect* was noticed in the amount of urea discharged with and without work. No suggestion is made as to the cause of the difference. Other papers on the

[1] 'Archiv f. Experiment. Path.,' 1873, 429.

[2] 'Journal of Anatomy and Physiology,' 1874, No. xv, November, p. 176.

[3] A. Morriggia, "On the Urine and Sweat," in 'Moleschott's' Untersuchungen,' 1873, No. ix.

[4] 'Archiv f. Experiment. Path.,' &c., 1874, B. ii, p. 21.

kidneys or urine are those of Baumstark,[1] Heidenhain,[2] Feltz and Ritter,[3] Knierim,[4] and Riedel.[5]

MILK.—Brunner[6] gives the average composition of the milk of women to be casein and albumen, 0·63; fat, 1·73; sugar, 6·23; water, 90·0; soluble salts and extractives, 1·41. The percentage of fat is low. Schukowsky,[7] in women in Moscow, finds the average amount of fat to be 3 per cent. Dr. de Sinéty,[8] from the examination of the milk in the human female and in animals, arrives at the following conclusions:—1. That in the living organism the globules of milk have no investing membrane. 2. That all the productions described as such or considered as globules of casein are secondary productions, due either to spontaneous modification of this liquid outside the body or to the action of the tests employed by different observers. See also Löwit.[9]

Messrs. Key and Retzius[10] begin their account with a careful description of the microscopical characters of the spinal cord, dura mater, subdural space, arachnoid, subarachnoid space, ligamentum denticulatum, and septum posticum. Minute details are in particular given of the subarachnoid trabeculæ, which have an important bearing on the connective tissue question. These trabeculæ, which were examined after maceration in osmic acid and staining with anilin, consist of fine fibrils, and are all, without exception, more or less closely surrounded by a thin investing membrane. This sheath is homogeneous, except that nuclei are distributed through it at certain points, causing both of its surfaces to project at these places. Around the nuclei the membrane is granular. It is clearly composed of a layer of extremely delicate cells (endothelial cells), the outlines of which are well brought into view by nitrate of silver. In new-born animals the sheaths are more protoplasmatic than in younger ones. When treated with acetic acid the more delicate trabeculæ spring back, and their granular remains produce the appearance known as "spiral fibres." The authors distinguish two layers in the pia mater, of which the internal is nearly the same in all animals, whilst the external presents great variations. The external is composed of longitudinal fibres running parallel to one another and their fibrillated membranes. The ligamentum denticulatum is intimately connected with this outer layer. The internal layer is divisible into three laminæ—an external limiting cell-membrane with

[1] Baumstark, 'Ber. d. deutsch. chem. Gesell.,' B. vi, p. 883.

[2] Heidenhain, "Versuche über den Vorgang der Harnabsonderung," 'Pflüger's Archiv,' 1874, B. ix, p. 1.

[3] Feltz and Ritter, "Étude experimentale sur l'alcalinité des Urines et sur l'ammoniémie," 'Journal de l'Anatomie et de la Physiol.,' 1874, p. 311.

[4] "Beiträge zur Kenntniss der Bildung des Harnstoffs im thierischen Organismus," 'Zeitschrift für Biologie,' 1874, p. 263.

[5] Riedel, "Entwickelung der Saugethierniere," in 'Merkel's Untersuchungen aus der Anatomischen Institut zu Rostock.'

[6] 'Pflüger's Archiv,' B. vii, 1873, p. 421

[7] 'Zeits. für Biologie,' Band ix, 1873, p. 432—434.

[8] Dr. de Sinéty, "Recherches sur les Globules du Lait," 'Archives de Physiologie,' 1874, p. 479.

[9] "Ueber die quantitative Bestimmung des Milchfettes," 'Pflüger's Archiv,' 1874, B. ix, p. 65.

[10] "On the Structure of the Nervous System," in 'Max Schultze's Archiv f. Microscop. Anatomie,' 1873, B. ix, p. 308, and 'Cbl.,' No. 3, 1874.

a more elastic longitudinally disposed plexus, a middle layer with stiff circular connective-tissue fibres, and an internal cell-membrane separating it from the spinal cord, also possessing an elastic circularly arranged plexus. The conclusions in regard to the minute structure of the nerves arrived at by Key and Retzius agree upon the whole with those of Ranvier. Each of the nerve fasciculi composing a great trunk like the sciatic is seen to be surrounded by a broader or narrower well-defined ring, which is equivalent to Robin's perineurium. The connective tissue in the interior of this is named by these observers the endoneurium, and that external to it the epineurium. In injected nerves the injection takes the place of the perineurium, and close investigation shows that it has run between the fine membranes of which the perineurium is composed. These latter closely resemble arachnoidal membranes, and are, in fact, a more or less direct continuation of the arachnoid. The endoneurium is in very intimate connection with the perineurium, whilst several perineural membranes separate off from the perineurium and penetrate into the interior of the nerve fasciculus. It thus becomes intelligible how, with strong pressure, the injection easily penetrates from the perineurium into the endoneurium, and ultimately causes the several primitive nerve fibres to be separated. In regard to the ultimate nerve fibres, the authors describe them as being invested, besides the sheath of Schwann, with a second comparatively wide tube, composed of delicate endothelial cells and connective-tissue fibrils. Injection fluid forced in from the perineurium into the endoneurium spreads itself, not only between the fibrillated sheaths of the several nerve fibres, but penetrates also into the interior of these fibrillated sheaths, and bathes the sheath of Schwann of the primitive nerve fibres. It never, however, runs internally to the sheath of Schwann. It is highly probable that these spaces above described are the lymph-paths of the nerves. The nerve fibres, therefore, each surrounded by the sheath of Schwann, lie within a fibrillated sheath, between which and the sheath of Schwann is a layer of lymph. This space communicates by openings with the spaces of the perineural sheaths, and by means of these with the lymph-spaces of the central nervous system. This lymphatic system is throughout the whole peripheric nerve system entirely shut off from the ordinary lymphatic system of the body at large, although it assumes the plexiform structure of the same in the spinal ganglia.

Mr. Darwin[1] describes the nerves supplying the vessels of the bladder as forming chain-like plexures of ganglia in the external coat, which run with the vessels. The ganglia are of various sizes and shapes, and chiefly connected together by non-medullated fibres. A chain of minute ganglia may also be remarked running partly round the base of the bladder. See also Boll,[2] Finkam,[3] Lantermann,[4]

[1] 'Quarterly Journal of Microscopical Science,' April, 1874.

[2] Boll, 'Max Schultze's Archiv,' B. x, p. 101. "Die Structur der Electrischen Platten von Torpedo und von Malapterurus."

[3] 'Reichert's Archiv,' 1874, p. 721. "Ueber die Nerven endigungen im grossen Netz."

[4] Lantermann, 'Centralblatt f. d. Med. Wiss.,' 1874, p. 706. "Bemerkungen über die feineren Bau der Markhaltigen Nervenfasern."

F. Goltz,[1] and A. H. Garrod.[2] M. H. Duret[3] gives in detail the distribution of the minute arteries of the medulla oblongata, and draws various pathological applications from the facts he has made out.

M. Pierret,[4] from anatomical and pathological observations, believes it can be demonstrated, first, that in the posterior part of the spinal cord, throughout its whole length, there are longitudinal fibres, which are more superficial and more closely approximated to the posterior median fissure in proportion to their length; and, secondly, that throughout the whole length of the posterior columns longitudinal fibres spring from the grey substance at different levels, and after pursuing a longer or shorter course re-enter into the grey substance. These fibres consequently represent longitudinal commissural fibres. See also Fehst.[5]

Hitzig[6] has repeated the experiment originally made by Galvani, of passing an electrical current across a nerve instead of along its course. He placed two nerves in such a position that they only touched each other at one point, and then applied the positive pole to one nerve and the negative to the other. He found that stronger currents were required to produce contraction than when the current was conducted in the long axis of the nerves. The contraction following the cathode excitation did not always correspond to the closure of the current, nor the anode contraction to the opening of the current. Filehne[7] maintains that the above effects described by Hitzig are due to the nerve being traversed by a brush of currents, which are denser at one side of the nerve than upon the other. The electrode of the denser side gives the shock; hence the varying results. Bernheim,[8] pursuing the same subject, believes the strength of excitation of or effect produced by a given current is proportional to the cosine of the angle that the electrical current makes with the direction of the nerve fibres.

Michael Foster[9] shows that whilst uninjured frogs make violent efforts to escape from water heated to about 30° C., animals which have had their brains removed make no attempt to move till their muscles pass into heat rigor, providing the temperature be slowly and gradually raised. He describes various modifications of this experiment, and concludes that the absence of reflex action in the brainless frog is due to the repressing or inhibitory influence of heated blood carried from the skin to the spinal cord.

[1] Goltz, 'Pflüger's Archiv,' B. viii, p. 460. "Ueber die Functionen des Lendenmarks des Hundes."

[2] Garrod, "On the Source of Nerve Force," 'Humphry and Turner's Journal of Anat. and Phys.,' 1873, p. 251.

[3] Duret, Brown-Séquard's 'Archives de Physiologie,' 1873, t. v, p. 97, 1874, p. 60, p. 316.

[4] Pierret, Idem, 1873, p. 534-546.

[5] 'Centralblatt f. Chirurgie,' 1874, No. 18. "Ueber das Verhältniss der Länge des Ruckenmarks zur Länge der Wierbelsaule."

[6] Hitzig, 'Pflüger's Archiv,' 1873, B. vii, p. 253.

[7] Idem, B. viii, p. 71-74.

[8] Idem, B. viii, p. 60.

[9] M. Foster, 'Studies from the Physiological Laboratory in the University of Cambridge,' Part I, 1873, p. 36.

Ananoff[1] found that of two rabbits poisoned with strychnia, convulsions could be staved off for nearly half an hour in one that was made to breathe oxygen gas, whilst the other which breathed ordinary air had convulsions in three minutes and died in seven. See also Buchner.[2]

Schiff[3] has discovered the interesting fact that atropine administered in small doses destroys all relation between the pressure of the blood and the rhythm of the cardiac pulsations. He has taken advantage of this fact to determine the presence or absence of accelerating nerves for the heart in the spinal cord. He believes the real accelerators of the heart to be fibres arising in common with the roots of the spinal accessory nerves which unite with the vagus at the base of the cranium, but (in the dog) separate before this nerve is continued from its second ganglion, and thence pass by the side of the carotid to the cardiac plexus. He finds that the spinal cord contains no accelerative fibres, for on placing an animal under the influence of woorara and dividing the medulla oblongata above, and the medulla spinalis below the emergence of the accelerating fibres, the effect observed was the nearly total abolition of the influence of the cord on the vessels of the lower parts of the body; further, on dividing the vagi and sympathetic nerves, the latter both in the neck and in the thorax, he found that irritation of the spinal cord did *not* produce any elevation of the pressure of the blood nor any increase in the number of pulsations, although the connections of the spinal cord with the heart were by this means perfectly preserved.

Dittmar,[4] in a paper on the vaso-motor and respiratory centres, corroborates the previous statements of Owsjannikow, whose method of experiment—namely, by making sections through the medulla oblongata —he has improved. Dittmar found (in rabbits) that the inferior limit of the vaso-motor centre was at a plane about three millimètres above the point of the calamus scriptorius. The upper limit was at about the upper border of the corpus trapezoides. This region corresponds to the place of origin of the nervi faciales. In Dittmar's experiments the blood-pressure was determined by the kymographion, and its rise after irritation of the sciatic nerve constituted a measure as to the extent to which the vaso-motor reflex centre had been eliminated by the section made. Sections showed that the sensory nerves, at least of the sciatic nerve (the irritation of which caused a rise of the blood-pressure), as well as the vaso-motor nerves themselves, ran in the lateral columns. Moreover, the centre on both sides lies in that part of the medulla oblongata which corresponds to the lateral column of the spinal cord, more particularly, however, in the anterior part of the same. Microscopic investigation showed this region to have a grey nucleus containing large multipolar ganglion-cells, which has been

[1] 'Centralblatt,' 1874, p. 417. "Ueber die Wirkung von Sauerstoffgas auf die erhöte Reflexerregbarkeit."

[2] 'Zeitschrift fur Biologie,' 1874, p. 373. "Zur Nervenreizung durch Lösungen indifferenten Substanzen."

[3] 'De l'Inflammation et de la Circulation. Pamphlet, 1873.

[4] 'Centralblatt,' No. 16, 1874.

designated by Dean and Kölliker as the inferior diffuse part of the superior olivary body, and by Clarke as the antero-lateral nucleus.

See also Claude-Bernard,[1] who refers the trophic changes observed in the eye after division of the fifth nerve between the Gasserian ganglion and the brain to the vascular changes produced.

Vulpian [2] adduces strong experimental evidence to prove that the vaso-motor nerve centre in the medulla oblongata is not the only centre of vascular nerves, but that a chain of such centres is situated in the grey substance of the spinal cord throughout its whole length. See also Vulpian [3] and E. Cyon.[4]

Schlesinger [5] shows that both vaso-motor nerves and motor nerves for the uterus issue from the spinal cord, and Rokitansky that centres exciting the respiratory movements exist in the spinal cord, since these movements can be called into play after division of the cord in the neck by strychnia.

Eckhard,[6] in order to ascertain the course of the *nervi erigentes* in the cerebro-spinal portion of their course, applied electrical excitation to various parts of the central nervous system, both in rabbits under the toxic influence of woorara and to animals not so poisoned. He found that, besides the proper nervi erigentes, there is a nerve in the rabbit corresponding to the hypogastric plexus in man, the irritation of which effects movements of the vasa deferentia. He found also that irritation applied successively in different animals to the lower cut surface of the lumbar and cervical portions of the spinal cord, even when the section of the latter was made between the atlas and occiput, produced free bleeding from the lower part of the amputated penis, such bleeding, of course, corresponding to erection. When the lower cut surface of the lumbar portion of the spinal cord was stimulated—provided the animal was not under the influence of woorara—perhaps in consequence of the coincident iritation of vaso-motor nerve fibres, a speedy diminution of the hæmorrhage, and in some cases even complete arrest of it occurred. This phenomenon was independent of the capability of functional activity of the nervi pudendales communes. Erection could also be called forth by excitasion of the pons Varolii and of the crura cerebri at their points of entrance into the cerebrum. Eckhard draws the conclusion that the nerves inducing erection run through the pons and take their origin from some part of the cerebrum. Putzeys and Tarchanoff,[7] E. Cyon.[8]

[1] 'Gaz. Méd. de Paris,' 1874, No. 13. "Extraits des Recherches sur les Nerfs trophiques et vaso-dilateurs."

[2] 'Archives de Physiologie,' 1874, p. 175. "Expériences relatives à la Physiologie des Nerfs vaso-dilateurs." [3] 'Comptes rendus,' 1874, B. lxxviii, p. 472.

[4] 'Pfluger's Archiv,' B. viii, p. 327. "Zur Lehre der reflectorischen Erregung der Gefassnerven."

[5] 'Wiener Med. Jahrb.,' 1874, p. 1.

[6] "Ueber den Verlauf der Nervi Erigentes innerhalb des Ruckenmarks und Gehirns," in 'Eckhard's Beitrage,' B. vii, p. 67.

[7] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 641. "Ueber den Einfluss des Nervensystems auf den Zustand der Gefasse."

[8] 'Pfluger's Archiv,' 1874, B. viii, p. 340. "Ueber den Einfluss der Temperaturveränderungen auf die centralen Enden der Herznerven."

The regeneration of the nerves has been studied by A. Vulpian,[1] Zuppinger,[2] and Carville and Rochefontaine,[3] for other papers on the nervous system see A. Pansch,[4] J. Luys,[5] L. Stieda,[6] S. Mayer,[7] L. Ranvier,[8] and Arndt.[9] MM. Arloing and Tripier[10] continue their observations on the physiology of the pneumogastric nerves. The general conclusions to which they have arrived are—1. That the section of the spinal cord behind the medulla oblongata causes considerable diminution in the excitability of the vagi. 2. That there exists a well-marked difference between the two vagi in regard to their functional activity; the right acting more energetically than the left upon the *heart*, whilst the left acts more energetically than the right in regard to the mechanical phenomena of respiration. 3. The excitation of the cut surface of the vagi is more effective in arresting the action of the heart than galvanization of the intact nerves. 4. Galvanization of the peripheric cut surface stops the heart in diastole, whilst galvanization of the central cut surface tends to arrest it in systole; whence it results that the action of the vagi on the heart is of a peculiar regulating kind. 5. The movements of the heart during galvanization of the vagi are more feeble than before excitation, but the pulse is larger, because the tension of the arterial system is reduced. 6. Galvanization of the peripheric extremity produces an effect upon the respiratory movements, probably because the vagi send recurrent fibres towards the periphery. 7. Section of one vagus is followed by diminution of the movements of the corresponding thoracic wall. 8. Lastly, no evidence can be obtained showing that one vagus rather than the other affects the function of digestion.

J. L. Prévost,[11] in a paper on the gustatory function of the lingual, gives the following as the results of his inquiries:—1. The ablation of the two spheno-palatine ganglia in the dog and cat does not produce any noticeable alteration in regard to the gustatory functions of those parts of the tongue that are supplied by the lingual nerve. 2. After section of both chordæ tympani in dogs and cats deprived of the glosso-pharyngeal nerves the taste has been in some cases scarcely altered, in others considerably diminished, and in one case apparently abolished. M. Prévost's results do not enable him to specify the exact rôle that

[1] Brown-Séquard's 'Archives de Physiologie,' 1874, p. 704-714.

[2] 'M. Schultze's Archiv f. Mik. Anat.,' B. x, p. 255. "Eine Methode Axencylinder-fortsätze der Ganglien-zellen des Ruckenmarks zu demonstriren."

[3] 'Gaz. Méd. de Paris,' 1874, No. 19. "De l'Ablation du Ganglion premier thoracique du Grand Sympathique chez le Chien."

[4] Abstract in 'Centralblatt,' 1874, p. 243. "Ueber die Furchung am Grosshirn des Menschen und der Saugethiere." [5] 'Physiologie de Cerveau.' Pamphlet.

[6] Stieda, "Ueber den Bau des Ruckenmarks der Haie und der Rochen," in the 'Zeitschrift f. Wiss. Zool.,' B. xxiii, p. 435.

[7] 'Wien. Akad. Anzeiger,' 1873, p. 52. "Zur Lehre von der Structur der Spinalganglien und der Peripherischen Nerven."

[8] 'Comptes rendus,' 1873, t. lxxvii, p. 1299. "Sur les Éléments Conjonctifs de la Moelle Épinière."

[9] 'Max Schultze's Archiv f. Mic. Anat.,' B. x, p. 208. "Untersuchungen über die Ganglienkorper des Nervus Sympathicus."

[10] Brown-Séquard's 'Archives de Physiologie,' 1873, t. v, p. 157-175.

[11] Brown-Séquard's 'Archives de Physiologie,' 1873, p. 253-280 and 375-388.

the chorda tympani plays in the function of taste, but he is inclined to think that it is only a subordinate one. 3. Contrary to the old observations of Vulpian, and conformably to his own more recent ones, Prévost has found that the chorda tympani sends filaments to the terminal branches of the lingual as well as to the submaxillary gland. Prévost, after section of the chorda tympani in the cat, dog, rat, rabbit, and guinea-pig, found degenerated nervous filaments in the terminal branches of the lingual, both in the mucous membrane of the tongue and in the nerves of the submaxillary gland.

In the last 'Biennial Report' the experiments of Hitzig on the localisation of cerebral centres in the brain were referred to. He has since repeated and extended his researches, and has collected his observations in a small volume. His experiments have been repeated by H. Nothnagel,[1] by Braun,[2] by Burdon-Sanderson,[3] and by Ferrier.[4]

Nothnagel found that pricking the posterior part of the posterior lobes of the cerebrum in the rabbit caused sudden and violent springing movements forwards, lasting for several minutes. No disturbance of sensibility could be demonstrated. Slight wounds of the optic thalamus were without effect, but deeper pricks brought the adductors of the opposite leg into play. Wounds of the posterior half, especially towards the base, caused the head to be turned to the opposite side, and the forelegs to move, the one on the same side outwards, on the opposite inwards.

Braun denies that the dura mater is as sensitive as Hitzig conceives it to be. He finds that there are sometimes two centres, the irritation of which produces similar effects on the same side of the hemisphere. He thinks the view that the effects observed when the surface of the hemisphere is stimulated are due to conduction to deep or distant parts is negatived by the fact he has observed, that when such a centre has been discovered, if an oblique cut be made dividing the descending fibres, all manifestations of irritation cease; and again, if the grey substance of a centre be shaved off, the application of the electrodes to the cut white surface (fibres) produces the same effects. Burdon-Sanderson has shown that there are points in the corpus striatum which correspond to those of the same hemisphere, though Dr. Ferrier thinks that in the cases where Dr. Sanderson believes he has proved this only a medullary cone, corresponding to the cortical centre, has been removed. Hitzig[5] is also opposed to Dr. Sanderson's statements as matters of fact. Ferrier, from experiments on various animals, concludes that the anterior portions of the cerebral hemispheres are the chief centres of voluntary motion and the active outward manifestation of intelligence. The individual convolutions are separate and distinct, and the centres for the various movements of the eyelids, the face, the mouth and tongue, the ear, the neck, the hand, foot, and tail, are localised in certain definite groups of convolutions. Striking differences corre-

[1] 'Virchow's Archiv,' 1873, lviii, p. 420, and lx, p. 129.
[2] 'Eckhard's Beiträge,' Band vii. [3] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 514.
[4] 'West Riding Lunatic Asylum Reports,' 1873, vol. iii, p. 30-96. See also paper read before Roy. Soc., 1874, March 5.
[5] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 548.

sponding with the habits of the animal are to be found in the differentiation of the centres. Thus, the centres for the tail in dogs, the paw in cats, and the lips and mouth in rabbits, are highly differentiated and pronounced. The action of the hemisphere is in general crossed, but certain movements of the mouth, tongue, and neck, are bilaterally co-ordinated from each cerebral hemisphere. The corpora striata are centres for the muscles of the opposite side of the body. Powerful irritation of one causes rigid pleurosthotonos, the flexors predominating over the extensors; the optic thalamus, fornix, hippocampus major, and convolutions grouped around it, have no motor signification, being probably connected with sensation. The optic lobes or corpora quadrigemina, besides being concerned with vision and the movements of the iris, are centres for the extensor muscles of the head, trunk, and legs. Irritation of these centres causes rigid opisthotonos and trismus. The cerebellum is the co-ordinating centre for the muscles of the eyeball. Each separate lobule (in rabbits) is a distinct centre for special alteration of the optic axes. On this integrity of their centres depends the maintenance of the equilibrium of the body. The evidence pointing to localisation of centres in the convolutions of the brain obtained from pathology is discussed by Hughlings-Jackson in the same journal as that in which Ferrier published his experiments.[1] Turner[2] gives an accurate drawing of the relation of the cerebral convolutions to the outside surface of the skulls. See also Betz[3] and Exner.[4]

Nothnagel,[5] from numerous experiments upon rabbits, finds that the thalami optici have nothing to do with the innervation of voluntary movements. No alteration in the sensibility of the skin can be shown to result from their extirpation. But they do appear to stand in direct relation to the muscular sense. C. Golgi[6] describes the structure of the cerebellum.

The structure and relation to the nerves of the tactile hairs of various mammals have been studied by various writers, as by Schöbl,[7] Stieda,[8] Dietl,[9] Sertoli,[10] Paladino and Lanzilotti-Buonsanti,[11] Redtel,[12] and Jobert.[13]

Krause[14] and Rauber[15] have described the termination of the sensory nerves in the synovial membranes of the joints of the fingers in man.

1 'West Riding Lunatic Asylum Reports,' 1873, pp. 175-195.

2 'Journal of Anatomy and Phys.,' 1874, p. 359.

3 'Centralblatt f. d. Med. Wiss.,' 1874, p. 578. "Anatomischer Nachweis zweier Gehirn-centra."

4 'Pfluger's Archiv,' 1874, B. vii, p. 601, and viii, p. 526. "Experimentelle Untersuchungen der einfachsten psychischen Processe."

5 'Centralblatt f. d. Med. Wiss.,' 1874, p. 577.

6 'Archiv. Ital. pei le Malattie Nervose,' 1874. Abstract in 'Centralblatt,' 1874, p. 694. "Sulla fina Anatomia del Cervelletto Umano."

7 'Max Schultze's Archiv f. Mic. Anat.,' B. ix, p. 197-219.

8 Idem, p. 795-800.

9 'Wien. Akad. Sitz.,' 1872, p. 62-76.

10 'Gaz. Méd. Veterin.,' 1872. Pamphlet, pp. 26.

11 'Bullet. dell' Ass. dei Med.,' 1871, No. 7.

12 'Zeits. f. Wiss. Zool.,' B. xxiii, p. 254-283.

13 'Ann. des Sci. Nat.,' t. xvi, 1872, and 'Comptes rendus,' lxxviii, p. 1008.

14 'Centralblatt für die Med. Wiss.,' 1874, p. 211 and 401.

15 Idem, p. 305.

For other papers see Langerhans,[1] G. Thin,[2] Klug.[3]

Hönigschmeid [4] has given the details of his examination of the goblet cells of the tongues of various mammals.

Dr. Martin [5] describes the olfactory epithelium of the newt, frog, and dog, and corroborates the statements of Max Schultze to the effect that there are two forms of cells anatomically distinct from each other.

Cisoff,[6] in a paper on the recognition of the olfactory region, has been able to isolate fine fasciculi of nerves in connection with true olfactory cells.

Paschutin [7] maintains that there is a distinct difference between the olfactory cells and ordinary epithelium. He has not been able to trace a connection between the cells and the nerve fibres.

Brunn [8] has discovered a membrana limitans olfactoria covering the free surface of the epithelium in the olfactory region.

The mode of termination of nerves has been the subject of examination by V. v. Ebner,[9] Jullien,[10] Inzani,[11] Eimer,[12] G. Asp,[13] Budge,[14] and Palladino.[15]

V. Ebner distinguishes three different kinds of epithelium on the crista acustica of the ampullæ of birds:— 1. Cylindrical cells, supporting long and fine hairs, which project into the cavity of the ampulla. 2. Fusiform thread cells, which form three or four layers beneath the foregoing. And 3. Basal cells in contact with the cartilage. He thinks the nerves may either divide and subdivide, the extremities ending as fine filaments between the epithelial cells, or that the nerves first join the thread cells, from which fibres are given off that run between the columnar cells and form the true termination of the nerves.

Eimer has not been able to trace any connection between nerve-fibres and the branched corpuscles of the epidermis described by various writers, which are stained deeply by chloride of gold. G. Asp has been unable to corroborate Pflüger's statements in regard to the

[1] 'Max Schultze's Archiv f. Microp. Anat.,' B. ix, p. 730-447. The tactile corpuscles and rete Malpighii of the skin generally.

[2] 'Wiener Acad. Sitz.,' 1873, B. lxvii, p. 130. "Uber den Bau der Tastkörperchen."

[3] 'Zeitschrift f Biologie,' 1874, B. x, 73. "Untersuchungen über die Wärmeleitung der Haut."

[4] 'Zeits. f. Wiss. Zool.,' B. xxiii, p. 414.

[5] 'Studies from the Physiol. Labor. of Cambridge,' Part I, p. 52.

[6] 'Centralblatt f. d. Med. Wiss.,' 1874.

[7] 'Leipziger Arbeiten,' 1873, p. 41. "Ueber den Bau der Schleimhaut der Regio Olfactoria des Frosches."

[8] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 709.

[9] Idem, 1874, p. 1.

[10] 'Contribution à la Étude du peritoine, ses Nerfs et leurs Terminaisons,' 1872.

[11] 'Recherches sur la Terminaison des Nerfs dans les Muqueuses des Tissus frontaux et maxillaires, &c.,' 1872.

[12] "Ueber die Nervenendigung in der Haut der Kuhzitze," 'Max Schultze's Archiv,' 1872, viii, p. 643.

[13] 'Centralblatt,' 1873, p. 363.

[14] "Einige Untersuchungen über das Verhalten der Nerven in den Pacinischen Korperchen den quergestreiften Muskeln und den Sympathischen Ganglien," 'Centralblatt,' 1873, p. 594.

[15] "Sulla terminazione dei nervi cutanei della labbra," 'Bulletino dell' Associazione dei Nat. e Med. di Napoli,' anno ii, No. 10.

mode of termination of those nerves in the cells of the salivary glands.

Jullien finds that the finest terminal fibrils of the nerves of the peritoneum, which are always non-medullated, end in pyriform capsules, which stain strongly with reagents, and present a sheath and contents. The fibrils run into the capsules, sometimes exhibiting a slight constriction. A process is given off from the distal end of the capsule, which again often exhibits a slight button at its extremity. Inzani describes a similar mode of termination as existing in the mucous membrane of the frontal and maxillary sinuses.

Albrecht Budge examined the mesocolon of cats, both in the fresh and hardened state, and stained with carmine and picric acid and chloride of palladium. Sections of the Pacinian bodies exhibited, not one, but several points corresponding to transversely divided non-medullated fibres, and these again presented many dark points in their interior which were the sections of axis fibre-fibrils. In the Pacinian corpuscles he observed also cells around which the fibrils form a plexus. He describes the ultimate branches of nerves both in the muscles and in the ganglia of the sympathetic nerve as ending in plexuses. Palladino, from researches made on the lip of the horse, finds that the nerves traverse the lowermost layers of the basement epithelium, and then end by *free* extremities.

Löwenberg[1] gives the results of experiments on the effects of the division of the semicircular canals of the ear. Other papers on the ear are by Moss,[2] A. Böttcher,[3] E. Cyon,[4] J. Breuer,[5] and C. F. Yule.[6]

P. Schech[7] made some important experiments on the larynx. He conducted his experiments on young and middle-sized dogs, which were fastened down, narcotised by means of morphia, and their mouths widely opened by means of a dilator. The tongue was then drawn forward, and the movements of the larynx examined with a laryngoscope.

The motor nerves of the larynx have been by some believed to be derived from the vagus; by others, and, indeed, by the majority of experimenters, from the spinal accessory. Schech gives an excellent historical account of the various opinions that have been held on this point, and on the evidence obtained from experiment and from pathology. His own experiments lead him to the conclusion arrived at by

[1] 'Knapp's Archives of Ophthalmology and Otology,' vol. iii, p. 26.

[2] Abstract of pamphlet in 'Centralblatt,' 1874, p. 662. "Beitrage zur normal. und Path. Anat. und zur Phys. der Eustachischen Röhre."

[3] 'Archiv f. Ohrenkeilkunde,' B. ix, p. 1. "Ueber die Durchschneidung der Bogengänge des Gehörlabyrinths."

[4] 'Pflüger's Archiv,' B. viii, p. 306-327. "Ueber die Function der Halbzirkelförmigen Canäle."

[5] 'Wiener Med. Jahrb.,' 1874, pp. 72-124. "Ueber die Function der Bogengänge des Ohrlabyrinths."

[6] 'Studies from the Physiological Laboratory in the University of Cambridge,' part 1, p. 58, and 'Humphry and Turner's Journal of Anat. and Phys.,' vol. viii, pp. 127-400. "The mechanism of opening and closing the Eustachian tube."

[7] "Experimentelle Untersuchungen ueber die Funktionen der Nerven und Muskeln des Kehlkopfes," in 'Zeitschrift für Biologie,' Band ix, p. 258, 1873.

Bischoff, that *it is* the spinal accessory nerve which supplies the motor fibres to the larynx. Extirpation or eradication of the accessory nerve of one side causes immobility of the vocal cords on that side, whilst eradication of both accessories causes immobility of both vocal cords in cadaveric position and complete aphonia.

Experiments on the *superior laryngeal nerve.*—This branch divides near the great cornu of the hyoid bone into a large internal branch and a smaller external branch. The former is sensory, the latter motor, supplying the crico-thyroideus; section of the superior laryngeal nerve prior to its division, or even of the external branch alone, prevents the longitudinal tension of the vocal cords, causes the production of a hoarse and deep voice, and abolishes the power of making high notes.

*Action of the crico-thyroid muscle.*—The generally accepted view is that the crico-thyroid draws the thyroid cartilage forwards and downwards, and therefore elongates and tightens the vocal cords. But in opposition to this is the fact that in the production of high notes the thyroid rises towards the hyoid. The elevation and fixation of the thyroid is effected by the contraction of the thyro-hyoids; for the cricothyroid, therefore (in order to effect the desired tension of the vocal cords), nothing remains but to oppose the thyro-hyoid with all its might, to which, however, its power is very inadequate. Schech thinks the action of the crico-thyroid is best explained on the following view. When the thyroid cartilage is fixed by the thyro-hyoids, the crico-thyroids draw the anterior part of the cricoid upwards towards the thyroid, and then effect a rotation of the plate of the cricoid backwards and downwards. Now, since the thyroid cartilage is fixed anteriorly by the thyro-hyoids, whilst the arytenoid cartilages are fixed posteriorly by the arytenoidei transversi and crico-thyrodei laterales to the cricoid cartilage, the backward inclination of the body of the cricoid caused by the contraction of the crico-thyroid affects also the arytenoid cartilages resting on it, the distance between the anterior and posterior attachments of the vocal cords is increased, and the longitudinal tension of these cords is brought about.

*Function of the nervus laryngeus inferior.*—This is the principal motor nerve of the larynx, supplying all its muscles, with the exception of the crico-thyroid. The constant results of section of the recurrent nerves on both sides are complete aphonia, immobility of the vocal cords, constriction of the glottis, and absence of dyspnœa of the animal, make no muscular movements. The vocal cords take up the position they assume in death, since all the muscles are rendered inactive, and none, therefore, preponderate in their action over the others.

*Function of the crico-arytenoideus posterior muscle.*—This is the most important of all the muscles of the larynx. It is the dilator of the glottis, and its nervous supply, though this has not been demonstrated, is probably partly derived from the vago-accessory centre, and partly from the respiratory centre. When divided on both sides the vocal cords approximate one another, and are no longer capable of moving outwards, or separating from each other during efforts at inspiration. Complete approximation and persistent dyspnœa do not occur imme-

diately. The contraction of the glottis and the vibration of the vocal cords occur normally, and the voice remains wholly unaltered.

Dr. Rumbold[1] endeavours to prove the correctness of the following propositions:

1. That during the act of deglutition the Eustachian tube is not an open passage into the tympanum.
2. That the walls of the Eustachian tube are constantly in slight contact.
3. That the air continually permeates the Eustachian tube into the tympanum, thus maintaining the normal air density in this cavity.
4. That the air in the normal tympanic cavity is not of equal density with that of the surrounding atmosphere, the air in the tympanum being rarefied.
5. That one of the functions of the Eustachian tube is the maintenance of this normal air density.
6. That the rarefied condition of the air in the tympanum is the cause of the uniform concavity of the membrana tympani, especially that portion of it from which the light spot is reflected.

The evidence adduced in favour of these several propositions is chiefly derived from clinical observation.

## RELATION OF NERVE TO MUSCLE.

Arndt,[2] Gerlach,[3] and Calberta,[4] have investigated the mode of termination of motor nerves. Arndt finds that the nerves passing to striated muscle form the Doyère's eminence within the sarcolemma, but can be traced beyond this, and end in a "granular fibrous" and tenacious fluid material which surrounds the primitive fibrils of the muscle like a coat. This material stands in intimate relation with the so-called muscle-nuclei, and, in fact, constitutes the protoplasm belonging to these nuclei. The sarcolemma and the neurilemma are continuous with each other. Arndt distinguishes a superficial more homogeneous and a deeper more granular basal portion in the Doyérian eminence. He finds the relations essentially similar in the Arthropoda and in Vertebrata. Arndt finds other fibres on the surface of the sarcolemma, which he thinks are sensory fibres.

Gerlach has used the gold method of staining perfectly fresh muscles, and doubts the existence of the nerve-plates. He finds that the axis-fibre, which is always simple, after it has perforated the sarcolemma, splits into two branches, one of which runs upwards, the other downwards, for a considerable distance. From these fibrils numerous branches are given off towards the centre of the muscular fibre, where they again divide, and run upwards and downwards. A plexus of axis-fibres is thus formed within the muscular substance.

Calberta describes the nerve-fibre as losing its medulla and becoming constricted as it traverses the sarcolemma. The axis-cylinder then

[1] 'The Function of the Eustachian Tube,' 1873. Pamphlet.
[2] 'Max Schultze's Archiv f. Microscop. Anatomie,' Band ix, p. 481-599.
[3] 'Sitzungsbericht d. Phys.-Med. Soc. zu Erlangen,' 1873.
[4] 'Zeitschrift f. Wiss. Zoologie,' Band xxiv, p. 164.

either ends in a simple point or in a brush of fibrils. A nucleus almost always lies just beneath the sarcolemma at the point of penetration of the nerve.

### MUSCLE.

Engelmann[1] undertook the careful microscopical investigation of the phenomena of muscular contraction. He selected the muscles of insects because the transverse striæ stand in them at wide distances apart. He adopted Hensen's method of fixing the waves of contraction by dipping the living muscle into a solution of perosmic acid containing 0·5—2 per cent. or into alcohol. He satisfied himself that the seat of the contractility is in the doubly refracting layers. In normal conditions, and when the contraction is not too violent, the surface of the sarcolemma remains perfectly smooth. In violent contraction the sarcolemma presents transverse striæ or wrinkles. The inflections of these wrinkles correspond to the singly refracting substance, the bulgings to the doubly refracting substance. The contents, especially the anisotropous substance, everywhere remain in contact with the sarcolemma and the increase in thickness is obviously the greatest in the case of the anisotropal disks. The doubly refractile substance is consequently the only contractile substance. During contraction the volume of the doubly refracting substance increases, that of the singly refracting diminishes, whilst during rest the thickness of the two disks is equal in contraction. The thickness of the anisotropal disk is three or four times greater than that of the isotropal. This is only explicable on the assumption that the anisotropal disk imbibes fluid furnished to it by the isotropal disk, which again re-enters the former during relaxation. This absorption of fluid explains the small diminution of volume which muscle undergoes during contraction. During contraction the isotropal layer becomes darker, the anisotropal brighter, so that the singly refracting substance, which in muscle at rest transmits more light than the doubly refracting, gradually becomes towards the maximum of contraction less transparent than it. In the transition stage with an intermediate amount of contraction both are equally bright. That layer which is doubly refracting in quiescent muscle remains doubly refracting during contraction, so that the change of place suggested by Merkel does not occur. From the change of form and volume of the two layers resulting from the action of indifferent desiccating agents during rest and action Engelmann concludes that the isotropal material becomes more solid during contraction, the anisotropal, with the exception of the median disk, less firm. Engelmann thinks that elongated molecules are present in the anisotropal layer, which must not be confounded either with disdiaclasts or with sarcous elements; that these must have considerable length in comparison with their breadth (25 : 1), and that they have a strong disposition to assume the spherical form by imbibition. The process of contraction he therefore regards as essentially an imbibition phenomenon, and compares it with various phenomena of a similar character in plants.

[1] "Mikroskopische onderzoekingen, &c." Abstracted from the Dutch in Hofmann and Schwalbe's 'Jahresberichte der Anatomie und Physiologie,' Band i, 1873, p. 500.

Schäfer[1] also gives a new view of the structure of muscular fibre. His observations were made on the large water beetle (*Dytiscus marginalis.*) The muscles were examined without addition of any reagent. He distinguishes a *ground substance* and *muscle-rods.* The ground substance appears at first sight to be composed of alternating dim and bright disks. The muscle-rods are of an elongated dumb-bell shape, the central shaft being embedded in, and traversing a disk of dim substance, whilst the enlarged extremities or beads extend into the bright disks. The beads give the appearance of the line of dots long ago observed to cross the middle of each bright stripe. During rest the muscle-rods are nearly or quite uniformly cylindrical, but in contraction the heads of the rods become enlarged at the expense of the shaft, and the enlarged heads being closely applied both to the neighbouring ones of the same series and to those of the next series which meet them in the bright stripe, the line of dots appears as a dark transverse band with bright borders. As the contraction proceeds, and these dark bands approach one another, the bright border encroaches upon the dim stripe, which finally disappears, so that its place is occupied by a single transverse bright stripe. Consequently contracted muscle shows alternate dark and bright stripes; the former, however, are in this case due to the enlarged juxtaposed extremities of the rod, the light, on the other hand, being mainly composed of the ground substance which has become accumulated in the intervals between their shafts. He describes the appearance presented on transverse section, and the appearances presented by muscle under polarized light. He regards the whole of the muscular fibre as anisotropous or doubly refracting, with the exception of the muscle-rods. He considers the intermediate ground substance as the really contractile part, while the rods are probably elastic structures, serving merely to restore the fibre to its original length.

Ranvier[2] has paid especial attention to the anatomical and physiological differences existing between the pale and the dark muscles of birds, rabbits, torpedoes, and rays. The difference of colour is not dependent upon the different amount of blood these muscles receive, since if serum be injected into the vessels the white muscles become still paler, but the red preserve their colour. Ranvier states that the two forms of muscle, when exposed to electrical excitation, behave differently. The *red,* when excited with an interrupted electrical current, gradually and progressively shorten. When the muscle has once contracted it remains so without communicating any vibration perceptible to the hand holding the electrical forceps like that produced by ordinary muscles. When the excitation ceases the muscle gradually resumes its former length. The *white muscles,* on the other hand, when excited by the same current, suddenly contract, and as long as the excitation lasts exhibit contractions corresponding to each interruption. When the excitation ceases they suddenly return to their origi-

[1] 'Philosoph. Transact.,' 1873, p. 429.

[2] "De quelques faits relatifs à l'histologie et à la physiologie des Muscles Striés." 'Archives de Physiologie normale et pathologique,' 1874, vi, p. 5, and 'Comptes Rendus,' 1873, lxvii, 1030.

nal length. In one experiment the semitendinosus of the rabbit (a red muscle) was exposed for one seventh of a second to an induction current, which was interrupted 357 times in a second. The muscle at once passed into tetanus, and the apex of a myographic curve retained a uniform height throughout the period of contraction. When the same current was transmitted for the same length of time through the adductor longus (a pale muscle) the myographic curve showed as many crests as there were interruptions to the current. In another experiment, in which there were fifty-five interruptions of the current in a second, the semitendinosus was thrown into a tetanic state, whilst the adductor marked the several interruptions. This peculiarity distinguishing the two kinds of muscle is as perceptible when the muscles are excited through the nerves as when they are excited directly, and is therefore dependent on some deep-seated physiological difference. The duration of the period of latent excitation was also found by M. Ranvier to differ in the two instances. In the case of the pale muscle it amounted to one eighty-third of a second, but for the red muscle it was as long as the one eighteenth of a second, or four times longer. After death the red muscles lose their excitability much sooner than the white. In regard to the histology of the two kinds of muscle, the fibres have the same diameter in both (0·040—0·060 mm.). The transverse striæ of the pale fibres are very distinct, whilst the longitudinal striation is scarcely perceptible. In the red fibre exactly the opposite obtains. The transverse striæ do not run straight across the whole fibre, but appear as broken lines. The red fibres have many more nuclei in their interior than the white. Each pale fibre possesses from one to four flattened nuclei lying immediately beneath the sarcolemma. The red fibres have from four to nine in the same position, besides others in their interior. In the Ray the red fibres are much finer than the white.

Danilewsky,[1] in his essay on the respiratory processes taking place in muscles, or, in other words, the changes in the amount of oxygen absorbed and of carbonic acid eliminated, states that his experiments lead to the conclusion that a tetanised muscle, when compared with a mechanically moved muscle, excretes more carbonic acid, but absorbs less oxygen. The quantity of carbonic acid excreted by the tetanised in comparison with that of the passively moved muscle is smaller the higher the temperature, and this may be explained on the following theory:—$CO_2$ is produced continuously in an excised muscle because it accompanies the stiffening (*rigor mortis*) of the muscle, and it is augmented during muscular activity. The quantity of $CO_2$, however, which can be excreted by a given muscle is definite, and if a muscle produces more $CO_2$ in consequence of activity the quantity of the gas excreted during stiffening is diminished, and *vice versâ*. It is known, further, that rigor mortis sets in quicker at a high than at a low temperature. If, now, during the experiment both muscles become quite rigid, the quantity of carbonic acid secreted by both must be equal, quite independent of the circumstance that one of them has been

[1] "Zur Physiologie der Muskel," in 'Centralblatt f. d. Med. Wiss.,' 1874, p. 721.

tetanised; the quicker, therefore, the rigor mortis can occur the nearer unity will be the quotient obtained by the division of the amount of carbonic acid the passively moved muscle produces by the amount the tetanised muscle produces. Since, now, the elevation of temperature favours the production of rigor mortis, it comes to pass that whilst at zero the quotient above mentioned is 10·5, at 15° C. it is 2·4, and at 25° C. 1·7.

The absorption of oxygen by the active muscle is always *less than* that of the passively moved. It may be concluded, therefore, that this stands in no direct relation with the process of muscular contraction. The reason of the greater absorption of oxygen in the case of the passively moved muscle as compared with the tetanised is due to the fact that the air around the former is constantly renewed. Increased consumption of oxygen causes no proportional increase in the excretion of carbonic acid. The process which is the source of the formation of $CO_2$ (and of muscular force) in muscle is not apparently dependent upon coincident absorption of oxygen. It must be admitted, therefore, that the two factors of the respiration of muscle are within certain bounds independent of one another; that the muscle takes up a large store of O into its substance, where it may long remain concealed without being excreted in the form of carbonic acid. The absorption of oxygen rises with the temperature.

Onimus[1] found that in a decapitated criminal the diaphragm and tongue first ceased to respond to electrical excitation; then the muscles of the face, the masseter being longest excitable (2 to 3 hours); then the extensors; then, an hour after, the flexors; and finally (5 or 6 hours), the muscles of the trunk.

Adamkiewicz,[2] shows that muscle is a very bad conductor of heat, worse, indeed, than water; that its low diathermancy is associated with great power of absorbing heat, and that its specific heat is greater than that of any known substance.

A valuable addition to our knowledge of the action and powers of muscle is contained in the work published by the Rev. Dr. Samuel Haughton, entitled 'Principles of Animal Mechanics' (1873). Only a few of the conclusions at which he has arrived from experiments carried on for many years past can here be given, and those who are interested in the subject must refer to the book itself for the details of the experiments and for the calculation on which his conclusions are founded. The course of this *résumé* will be in the order of the work. Dr. Haughton enters into a description of the muscular susurrus, and collects evidence from various sources showing that it corresponds to about 32 to 36 vibrations in a second; in over-fatigue the pitch of the susurrus is lowered, and temporary paralysis agitans is established. He gives a series of experiments undertaken with the object of determining the *statical work* capable of being done by muscles, such as the resistance of pressure. In these experiments the length of time the unloaded and the loaded (with 2 lb.) hand could be held out horizontally was noted, the length of the arm was measured, and the weight of

[1] 'Journal de l'Anatomie,' 1873, p. 442.
[2] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 340.

the muscle called into play estimated from careful dissection previously made.[1] It was found that the work done by the shoulder muscles employed in holding the *unloaded* arms horizontally, per ounce per second, was equal to 1·468 foot-pounds, whilst the work done by muscles holding the *loaded* forearm horizontally, per ounce per second, was equal to 1·028 foot-pounds, and by calculation he finds that the useful work is a maximum when the weight held in the hand is half the weight of the arm. He further deduces a "law of fatigue," which is, that when the same muscle (or group of muscles) is kept in constant action until fatigue sets in, the total work done, multiplied by the rate of work, is constant; so that if a man become fatigued after walking thirty miles at the usual rate, if he walk twice as fast he will become fatigued at the end of fifteen miles, having done only half the total work in a quarter of the original time. If he walk three times as fast he will become tired out at the end of ten miles, in one ninth part of the original time, and so on, the total work done always varying as the square root of the time necessary to produce fatigue. Another series of experiments was undertaken to determine the *dynamical work* done by muscles alternately contracted and relaxed, and estimates were made from various well-known instances where great muscular effort is put forth. Amongst others, it was found that the work done by each man in the university boat race is four foot tons per minute. In many other kinds of labour 400 foot-tons of work are accomplished in ten hours. The oarsman, if he could continue his work at the same rate, would finish his day's task in one hour and forty minutes, or he works six times as hard as a hard-worked day labourer. In another way of putting it, the muscles of the oarsman raise 13·825 lb. one foot per ounce of muscle per minute. Dr. Haughton found the absolute force of muscle when employed for an instant, or for a very short space of time, is 954 lb. per square inch, but when moderately used their maximum force per square inch of cross section is 102·55 lb. av., or 7·225 kilogrammes per square centimètre. Dr. Haughton illustrates at great length by reference to the size of the tendons of the muscles moving the hand and foot in man and animals the principle of economy of force or of material in nature, showing that these tendons are never larger than is absolutely necessary for the object in view. He next proceeds to consider the mechanical work done by the heart. He estimates the capacity of the left ventricle at three ounces; that when experiencing the minimum of resistance, as when the vessels are nearly empty of blood, it contracts with a force measured by 2·58 ft. of a vertical column of blood, and that the ordinary blood-pressure is equal to the weight of a column of blood 9·923 ft. in height. The daily work of the left ventricle is thus $\frac{3 \times 9{\cdot}923 \times 75 \times 60 \times 24}{16 \times 2240} = 89{\cdot}706$ ft.-tons; and as the thickness of the right ventricle is to that of the left as

[1] The weight of the portion of *deltoid* called into play in this action was found to be 2·83 oz., and of the supraspinatus 1·67 oz. av., giving a total of 4·50 oz. av. The length of the arm varied in different persons from 22 to 24 inches, the time the arm could be held out varied from 390 to 720 seconds. The weight of the arm varied from 5 lb. 14 oz. to 7·5 lb.

5 : 13, whilst the cavity is of equal dimension, it follows that the daily work of the right ventricle is 34·502 tons, or the total daily work of both ventricles is equal to 124·208 foot-tons. As the mean weight of the heart is 9·39 oz., the work done by it in foot-pounds per ounce per minute $= \frac{124 \cdot 208 \times 22 \cdot 40}{9 \cdot 39 \times 24 \times 60} = 20 \cdot 576$, which considerably exceeds the work done by muscles in a boat. It could raise its own weight 20,000 feet in an hour.

M. A. Lecomte[1] contests the accuracy of the statement generally made and fully expressed by Cruveilheir, that in rotation of the hand the radius rotates around the stationary ulna. He maintains, on the contrary, that *both bones* participate in the movement in an equal and harmonious manner, the play of movement in both the upper and lower articulations being very complicated. The movement is effected by four muscles, two pronators and two supinators. The radial pronator is the pronator teres; the radial supinator is the supinator brevis; the cubital pronator is the anconeus, and the cubital supinator is the pronator quadratus. The axis round which the rotation takes place is by no means always that passing through the centre of the middle finger, since this may be displaced either inwards or outwards.

See also Mach.[2]

Dr. Crum Brown[3] discusses the subject of the sense of rotation, which he regards as a distinct sense, and that its perceptions are obtained from the ampullæ of the semicircular canals. See also on this point Weber[4] and R. Gscheidlen.[5]

GENERATION.—DEVELOPMENT.

A. Huizinga,[6] Samuelson,[7] and Roberts,[8] discuss the question of abiogenesis. The first-named experimenter shows that bacteria can be developed with certainty from a solution containing 500 ccm. of water, 1 gramme of potassic nitrate, 1 gramme of magnesium sulphate, with 0·2 gramme of neutral calcium phosphate. To 100 ccm. of this solution are added 2 grammes of glucose, 0·2 of soluble amylum, 0·3 of peptone, and 0·05—0·1 of calcium carbonate. The complex solution is placed in a little cell, boiled for ten minutes, and the mouth closed with a hot plate of porous earthenware. After three days' exposure at a temperature of 100° the fluid will be found filled with bacteria. Huizinga agrees with Cohn in thinking that ten minutes' exposure to a boiling temperature is sufficient to kill bacteria, any movements they may afterwards exhibit belonging to the class of molecular and not of vital motion.

Dr. Roberts's paper is divided into three sections. The first is on

[1] 'Archives Générales de Médecine,' Août, 1874.

[2] 'Wien. Acad. Sitzungsber.' Band lxviii, 1873, p. 124. "Physikalische Versuche über den Gleichgewichtsinn des Menschen."

[3] 'Journal of Anat. and Physiol.,' 1874, p. 327.

[4] "Note sur les Noyaux des Muscles striés chez la Grenouille adulte," in Brown-Séquard's 'Archiv de Physiologie,' 1874, p. 489.

[5] 'Pflüger's Archiv,' Band viii, p. 506. "Ueber das Reductionsvermögen des thätigen Muskels."

[6] 'Pflüger's Archiv,' Band vii, 1873, p. 549-575, and viii, p. 277-288.

[7] Idem, Band viii, p. 277.

[8] "Studies on Biogenesis," 'Proceed. of Roy. Soc., vol. xxii, p. 289.

the sterilization by heat of organic liquids and mixtures. He finds that when beef tea or a decoction of turnip is boiled for a few minutes and afterwards preserved from extraneous contamination it passes into a state of permanent sterility. This state is characterised by loss of power to *originate* organisms with conservation of the power of *nourishing and promoting* the growth of organisms. All organic liquids and mixtures seem capable of being brought to this state by exposure to a heat of 212° F., but the length of time during which exposure to this heat is necessary to induce sterilization varies greatly according to the nature of the materials; ordinary infusions being sterilized in ten minutes, whilst milk, chopped green vegetables in water, pieces of boiled egg in water, and other mixtures, were not sterilized unless the heat was continued for twenty to forty minutes. Hay infusion was sterilized like other infusions by boiling for a few minutes, but when rendered alkaline by ammonia or liquor potassæ it was not sterilized except after an exposure to 212° F. for more than an hour; sometimes it germinated after two and once after three hours' exposure. The two factors—duration of heat and its degree—seem to be mutually compensatory, a longer exposure to a lower heat being equivalent to a shorter exposure to a higher temperature. Speaking roughly, an exposure for an hour to a heat of 212° F. appeared to be equivalent to an exposure of fifteen minutes to 228° F. The second section is devoted to the capabilities of the normal tissues and juices to generate bacteria and torulæ without extraneous infection. Egg albumen, blood serum, blister serum, milk, grape, orange, and tomato juice, turnip, and potato tissue—these were rapidly removed from their ordinary sites and placed in sterilized tubes, and kept at temperatures varying from 60° to 90°, and the rarity with which bacteria and torulæ were developed when the last condition of the experiment were carefully preserved led to the conclusion that the normal tissues of plants and animals were incapable of breeding bacteria and torulæ except under the stimulus of extraneous infection.

The third section is devoted to the bearing of these facts, which is that ordinary air and water contain, in addition to their proper elements, multitudes of particles capable of provoking germination. Dr. Roberts is therefore a panspermist, and he observes that were it hereafter established that bacteria and fungoid vegetations do under exceptional instances arise abiogenically, it would not overturn the panspermic theory, but would merely limit the universality of its application.

Dr. Williams's[1] paper consists of observations made on the uteri of nine women who had died in different stages of the monthly period. Dr. Williams finds that menstruation appears essentially to consist, not in congestion or a species of erection, but in growth and rapid decay of the mucous membrane. The menstrual discharge consists chiefly of blood and of the *débris* of the mucous membrane of the body of the uterus. The source of the hæmorrhage is the vessels of the body of the uterus. The mucous membrane having undergone fatty degeneration, blood becomes extravasated into its substance, then the membrane undergoes rapid disintegration and is entirely carried away by the

[1] "The Structure of the Mucous Membrane of the Uterus, and its Periodical Changes," 'Proceed. Royal Soc.,' 1874, vol. xxii, p. 297.

menstrual discharge. A new mucous membrane is then developed by proliferation of the inner layer of the uterine wall, the muscular tissue producing fusiform cells, and the groups of round cells enclosed in the meshes of the muscular bundles producing the columnar epithelium of the glands.

Dr. Dewar and Dr. McKendrick[1] consider they have experimentally proved—1. That the impact of light on the eyes of members of the following groups of animals, viz. Mammalia, Aves, Reptilia, Amphibia, Pisces, and Crustacea, produces a variation amounting to from 3 to 10 per cent. of the normal electro-motive force existing between the retinal surface and the transverse section of the nerve. 2. That this electrical alteration may be traced into the brain. 3. That those rays that we regard as most luminous produce the largest variation. 4. That the alteration of the electrical effect with varying luminous intensity seems to follow very closely ratios given by the psycho-physical law of Fechner. 5. That the electric alteration is due to the action of light on the retinal structure itself, as it is independent of the anterior portion of the eye, eliminating, therefore, the natural supposition that the contraction of iris might produce a similar result. 6. That it is possible by experiment to discover the physical expression of what is usually called in physiological language fatigue. And, 7. That the method employed in this research may be applied to the investigation of the special organs of other senses.

The chief addition to the department of embryology has been the admirable work of Foster and Balfour giving an account of the development of the ovum of the fowl. Balfour has also studied the development of the elasmobranch fishes, and has contributed an interesting essay upon it to the 'Quarterly Journal of Microscopical Science.' He has devoted himself to the development of the Teleostei, and published the result of his inquiries in a separate pamphlet.

V. Bambeke[2] discusses the existence of the nucleus of Balbiani, or vésicule embryogéne of Milne-Edwards, and finds it to be very constantly present. It is quite distinct from the germinal vesicle, but, like this, disappears as the egg reaches maturity.

For other papers on development see Urbantschitsch,[3] Wendt,[4] Zuckerkandl,[5] J. Mauthner,[6] V. Mihalkovics,[7] V. Török,[8] A. Götte,[9]

[1] "On the Physiological Action of Light," 'Transactions of the Roy. Soc. of Edinburgh,' vol. xxvii, p. 141.

[2] 'Bull. de la Soc. de Méd. de Gand,' 1873.

[3] 'Wien. Acad. Sitz.,' lxviii, 1873, p. 19, "Ein Beitrag zur Entwicklungsgeschichte der Paukenhöhle."

[4] 'Archiv der Heilkunde,' Band xiv, "Der Paukenhöhle beim Fötus und bei Neugebornen."

[5] 'Monatsschrift f. Ohrenheilk.,' 1873, No. 3, "Zur Entwickelung des ausseren Gehörganges."

[6] "Ueber den Mütterlichen Kreislauf in der Kaninchen-placenta," &c., 'Wiener Akad. Sitz.,' Band lxvii, Abt. iii.

[7] "Entwickelung der Zirbeldrüse," Idem, p. 307, 'Centralblatt fur die Med. Wiss.,' 1874, p. 241, and 'Entwickelung der Hirnanhanges.'

[8] 'Centralblatt fur die Med. Wiss.,' 1874, p. 257, "Rolle der Dotterplättchen beim Aufbau der Gewebe."

[9] 'Max Schultze's Archiv f. Mic. Anat.,' Band x, p. 145-149, "Beiträge zur Entwickelungsgeschichte der Wirbelthiere."

Romiti,[1] Balbiani,[2] Sernoff,[3] Turner,[4] Rauber,[5] A. Schultz,[6] S. L. Schenk,[7] Gasser,[8] W. Roberts.[9]

Some interesting papers have been published in the Monthly Microscopical Journal by Drs. Dallinger and Drysdale[10] in regard to the life-history of the monads. In their first paper they describe the life of a circomonad found in the fluid obtained by macerating a cod's head. The monads as first seen were oval and possessed two flagella; when mature this form multiplies by fission for a period extending from two to eight days. It then becomes peculiarly amœboid; two individuals coalesce, slowly increase in size, and become a tightly distended cyst. The cysts burst and incalculable hosts of immeasurably small sporules are poured out as if in a viscid fluid and densely packed; these are scattered, slowly enlarge, acquire flagella, become active, attain rapidly the parent form, and once more increase by fission. In some instances monads appeared and developed in an infusion which had been raised to 127° C., and they are strongly opposed to the idea of spontaneous generation.

M. Slavjansky[11] states in regard to the retrogression of the Graafian follicle that these follicles are developed from the primordial follicles and acquire a greater or less degree of maturity during the whole of life, from the first month after birth till about the age of 40. The greater part of the follicles do not ripen, do not burst, and do not discharge their contents, but undergo atrophy, presenting an almost complete analogy with that of the formation of the corpora lutea. 3. The development and maturation of the Graafian follicles do not occur periodically in a regular manner, and no connection exists between them and menstruation; menstruation constitutes a physiological phenomenon which is quite independent of the development and maturation of the follicles. The rupture of follicles more or less mature always bears a certain relation to congestions of the genital organs, produced by any cause whatever. There exist certain maladies, acute poisonings, &c., which produce atresia of the follicles at different periods of their development after a parenchymatous inflammation of the ovary.

[1] 'Max Schultze's Archiv f. Mic. Anat.,' Band x, p. 201, "Ueber den Bau und die Entwickelung des Eierstockes und des Wolffschen Ganges."

[2] 'Comptes Rendus,' 1873, Band lxxvii, p. 1373, "Sur la Cellule embryogène de l'œuf des poissons osseux."

[3] 'Centralblatt,' 1874, p. 2181, "Die Entwickelung der Samenröhrchen des Hodens und der Mullerschen Gänge."

[4] 'Transact. of Roy. Soc. of Edinb.,' 1873, 'Journal of Anatomy and Physiology,' 1874, p. 362, "On the Placentation of the Sloths."

[5] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 786, "Ueber die Embryonalanlage des Hühnchens."

[6] 'Centralblatt f. d. Med. Wiss.,' 1874, p. 804, "Zur Phylogenie der Wirbelthiere."

[7] "Vergleichende Embryologie der Wirbelthiere," 'Wien,' 1874, p. 198.

[8] "Habilitationschrift," abstract in 'Centralblatt,' 1874, p. 852, "Ueber Entwickelung der Allantois der Muller'schen Gange und des Afters."

[9] "Studies on Biogenesis," 'Phil. Transact.,' vol. 164, part 2, p. 457.

[10] Dallinger and Drysdale in 'Monthly Microscopical Journal,' vol. x, 1873, pp. 53 and 245; vol. xi, 1874, pp. 7, 69, 97; vol. xii, p. 261.

[11] Slavjansky, Abst. in 'Medical Record,' June 15, 1874.

Dr. Van Bambeke[1] in acordance with Balbiani, maintains that the ovule is not so simple a structure as is generally believed; for by an extensive series of researches over nearly every class of animals he has assured himself that besides the germinal vesicle considered as the nucleus of the egg cell, there is a second nucleus the function of which consists essentially in bringing about the separation of the elements, till then indifferent, of the protoplasm of the young ovule into a germinal part and a nutritive part, grouping around the one the materials destined to form the plastic part or the germ whence is later formed the embryo, whilst the other or simply nutritive material remains around the germinal vesicle. Hence the name Vésicule embryogène given by Milne-Edwards to Balbiani's vesicle. Prof. His in a recent paper has, however, omitted all mention of Balbiani's vesicle, but Bambeke from observations made upon the ovarian egg of osseous fishes is certain that in ovules of a certain age besides the germinal vesicle may be found another nuclear mass, viz. le noyau de Balbiani. Generally speaking, this nucleus is not readily distinguishable in ova examined in the fresh state or in indifferent liquids, but it soon appears under the influence of certain reagents, such as chloride of gold, picrocarmine, and above all acetic acid. It exists in even the smallest ovules and is always excentric as regards the germinal vesicle, and is in general very close to the periphery of the egg. Its volume, which is generally inferior to that of the germinal vesicle, increases with the age of the ovule. It disappears with the maturity of the ovum, consequently its disappearance precedes that of the germinal vesicle.

Volkmann[2] has subjected the rotation of the body to careful examination, and has arrived at some interesting results. He employed a goniometer, the middle point of which was placed in the axis of rotation of the trunk. Two persons were examined, one of whom was aged (I), the other (II) young. The knees were kept straight and stiff during the measurements.

| | I. | II. |
|---|---|---|
| 1. Rotation of the Pelvis . . . . . . . | 66° | 88 |
| 2. Rotation of the Pelvis and Thorax as far as the Neck | 91° | 113 |
| 3. Rotation of Pelvis, Back, Neck, and Head | 147° | 175 |
| 4. Rotation of Head and Neck alone . | 53° | 32 |
| 5. Rotation of Head alone . . . . | 32° | 52 |
| 6. Rotation of Back alone . . . . | 25° | 25 |
| 7. Rotation of Neck alone . . . . | 21° | 20 |

The rotation of the pelvis with stiffened knees was effected by the hip and ankle-joints. On excluding the ankle-joint by bending the knee, the rotation fell from 66° to 40°. The rotation in the ankle-joint was effected by the tibial and peroneal muscles. In rotation of the pelvis the breadth of the hips, that is to say, the distance of the two characters from each other, is diminished to the extent of 10 millimeters. The pelvis moves in rotation in a screw line with distinct depression at the end of the movement.

[1] Van Bambeke, 'Monthly Microscopical Journal,' Aug. 1, 1874.

[2] Volkmann, "Ueber die Drehbewegung des Körpers," 'Virchow's Arch.,' Band lvi, p. 467.

Mihalkovics[1] gives a very full account of the structure of the testis, including the course, structure, and contents of the tubuli seminiferi, the nature of the intermediate substance and the arrangement of the lymphatics and blood-vessels. He divides the tubuli into four sections, namely, the part secreting the specific seminal elements or tubuli seminales contorti. 2. The straight tubules, tubuli seminales recti. 3. The plexus seminales, and, 4. the epididymis. The tubuli contorti form a plexus of dichotomously dividing canals. The terminal branches form loops. In man these tubules present small bud-like projections of the wall. Mihalkovics agrees with v. Ebner in admitting the existence of spermatoblasts. He doubts, however, their plexiform arrangement as described by v. Ebner. The tubuli recti are not continuations of the foregoing, but excretory ducts with lower epithelium. The epididymis he regards as the organ in which the greater part of the fluid constituents of the semen are secreted. He finds that the interstitial connective tissue consists of fasciculi of fibres of greater or less fineness which form plexuses and are invested by endothelial cells; their membranes formed of such cells extend from one fasciculus to another, slightly supported by connective-tissue fibrils and having distinct stomata. Scattered amongst the fibres are protoplasmic cells similar to those found in other parts of the body. The lymphatics commence into the intermediate spaces as lacunæ and fissures, and no proper tubular vessels are found in the parenchyma. The tubuli seminiferi are surrounded by a very dense plexus of capillaries.

M. Beneden[2] remarks that it has hitherto been almost universally admitted that the testis and ovary spring from the same embryonic organ, which, becoming differentiated with the advance of growth, becomes the testis in the male and the ovary in the female. His own researches, however, made on different kinds of zoophytes, and principally upon *Hydractinia*, *Echinata*, *Clava squamata*, and *Campanularia gelatinosa*, have convinced him that the axiom of the identity of the two sexual glands has no scientific basis. The testis he finds to be derived from the external lamina or ectoderm, whilst the ovary has its *point de départ* in the internal lamina of the embryo, which is the homologue of the endoderm of zoophytes. The homology which exists between the two primordial laminæ of the embryos of Vertebrata and the two laminæ which form the bodies of Zoophytes was first recognised by Huxley. At present the form "gastrula," consisting of an ellipsoidal cavity, circumscribed by two cellular laminæ applied to one another, the endoderm and the ectoderm, has been observed not only amongst Zoophytes and Vertebrata, but also among Vermes, Echinodermata, Mollusks, and Arthropods—in a word, in all the great divisions of the animal kingdom with the exception of the Protozoa. These are generally monocellular, like the Gregarinadæ and Infusory Animalculæ, and never present anything comparable to the two laminæ of the metazoaries. The ectoderm of Zoophytes is homologous with the external lamina of the embryo of Vermes, Mollusks, Echinodermata, Arthropods, and Verte-

[1] Mihalkovics, 'Anatomie und Histologie des Hodens Leipziger Phys. Arbeiten,' 1873, B. viii, p. 1.

[2] 'The Distinct Origin of the Testis and Ovary.'

brata. The endoderm has in all metazoaries the same anatomical value. For the study of the origin of the essential organs of generation M. v. Beneden selected zoophytes, in which animals the ectoderm and endoderm persist almost unaltered throughout the whole course of evolution. He finds that the ova in Hydractinia and Clava are only the modified cells of the endoderm, which the testis develops at the expense of a cellular bud which proceeds from the inner face of the ectoderm. The male organ arises from the nervous or animal layer ; the female organ proceeds from the intestinal or vegetative layer, and fecundation consists in a simple mixture of ectodermic elements with a product of the endoderm. Moreover M. v. Beneden has shown that every sporosac originally contains within itself the rudiments of an ovary and of a testis; and if this observation be associated with the researches of Waldeyer on the Vertebrata and the established fact that all animals possess an endoderm and an ectoderm, the conclusion is forced upon us that every animal is primarily hermaphrodite. In accordance, however, with the development of one or the other, the testis or ovary remains in a rudimentary condition.

### *Histology.*

Various papers have been written upon the histology of the different tissues. Amongst the more important are those of Löwe [1] on the structure of the connective tissue, who finds that all fissures and lacunæ in the connective tissues are serous cavities. Spina [2] and Ditlevsen [3] on the structure of tendons, Deutschmann [4] and Hertwig [5] have written on the development of elastic fibres in reticular cartilage. Deutschmann considers that they are developed from the cartilage cells as a whole, including both the capsule and the contained protoplasm. They first appear as very fine striæ which gradually increase in size. This seems to be the view of Hertwig also.

### *Cartilage.*

Hitzmann [5] gives an account of the cellular elements of bone and of the structure of hyaline cartilage with the changes occurring in them in inflammation. See also Ch. Robin's [6] 'Observations comparatives sur la moelle des os.'

Kölliker [8] describes the mode in which Howship's lacunæ and absorption cavities are formed in bone, and is of opinion that they result from the action of certain large protoplasmic cells, termed osteoclasts, which possess several nuclei, and are probably the descendants of the proper bone-forming cells or osteoblasts. See also J. v. Rustizky.[9]

[1] 'Centralblatt f. d. Med. Wiss.,' 1784, p. 145.
[2] 'Stricker's Med. Jahrb.,' 1873, Heft iii.
[3] 'Abstract in Centralblatt,' 1873, p. 670.
[4] 'Centralblatt fur die Med. Wiss.,' 1874, p. 273.
[5] 'Max Schultze's Archiv,' 1872, B. ix, pp. 80—100.
[6] 'Stricker's Med. Jahrb.,' vol. iv, 1872, and 'London Medical Record,' vol. i, pp. 52, 69, which contains a full abstract by Klein.
[7] Journ. de l'Anat. et de la Phys.,' 1874, p. 35.
[8] Kölliker, 'Verhand. d. Phys. Med. Ges. in Wurzburg,' iii, 315, and 'London Medical Record,' vol. i, p. 70.
[9] Rustizky, 'Untersuchungen über Knochenresorption und Riesenzellen.'

# REPORT ON PRACTICAL MEDICINE.

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## A. DISEASES OF THE GENERAL SYSTEM.

### *Inflammation and Suppuration.*

COHNHEIM publishes an important memoir ('Neue Untersuchungen über die Entzündung,' Berlin, 1873, 85) in continuation of his former works on inflammation. He still maintains his former opinion as to the origin of pus, as opposed to that of Stricker and his school. In his first paper on the subject ('Virch. Arch.,' xl, 1) he had explained the migration of the white corpuscles by their spontaneous contractility, the exit of the red corpuscles by the increased blood-pressure forcing them through stomata which existed in the walls of the vessels, and had been enlarged by the dilatation of the latter during the process of inflammation. This explanation was opposed by Hering and Schklarewsky, who looked upon the exit of the corpuscles as a process of filtration of colloid substance through the physical pores of the vessel wall, due to increased lateral blood-pressure. He shows by a simple experiment of pinching a frog's tongue that dilatation of the veins, slower blood current, marked adhesion of the colourless corpuscles, increased pressure in the capillaries during the dilatation, may all take place without the passage of a single blood-corpuscle of either kind through the vessel wall. So far neither his own explanation nor that of his opponents will hold, and he attempts to find a more real cause in a change in the vessel walls themselves. To solve this question he made the following experiments:—On cauterizing the tongue of a frog with nitrate of silver, changes are observed similar to, but more intense in character than, those obtained by pinching. But at a later period the capillaries in the immediate neighbourhood of the cauterized part are in a state of complete stagnation, and in from six to eight hours after beginning the experiment, there is extravasation of both white and red corpuscles. From the second to the fourth days there is round the scab a narrow

*Note.*—Unless stated otherwise, all references in the following abstracts are to volumes and pages. A table of errata in the last Report will be found at the end of this.

zone of absolute stasis, then a broader zone of stagnant capillaries with enormous diapedesis; and, lastly, a still broader zone of capillaries in which the circulation is decreased and from which there is abundant extravasation of corpuscles. At the same time there is great emigration from the dilated veins in the region of the scab, accompanied by transudation of plasma. Other caustic substances have pretty well the same results. Cohnheim explains the dilatation of the vessels by a relaxation of the circular muscles caused by the direct action of the caustic. The primary dilatation of and increased current in the arteries and veins ensuing immediately on application of the caustic are only temporary and accidental; the subsequent dilatation and stasis are permanent and necessary to the process of inflammation, without standing in any necessary relation to the former. The same succession of symptoms follows the application of croton oil to the tongue of the frog or the shaved ear of a white rabbit. In experiments on the cornea of rabbits the alteration was always preceded by a marked injection of the conjunctival vessels near the injury, not due, according to the writer, to reflex action. For, if in a rabbit whose facial nerve has been divided a fine silk thread be inserted in the centre of the cornea, no abnormality is noticed at first. Three or four hours later there is partial or general injection of the cornea, which reaches its maximum in 24 to 36 hours. Other changes resembling those produced by cauterisation, are described as occurring after freezing and heating, and after exposure of the mesentery to air. Cohnheim finds by emptying the vessels of a rabbit's ear, in a way described in the text, and by filling them with other fluids, that a pure diluted saline solution had no harmful effect, as also was the case on injecting fresh blood-serum from the dog or ox, while distilled water and other injected fluids set up a true inflammatory process.

Feltz ("Recherches expérimentales sur l'inflammation du péritoine et l'origine des leucocytes;" 'Journ. de l'Anat.,' ix, 113) refers to his former experiments (see 'Rep. on Practical Medicine,' 1869-70, 34), and writes a short paper on the normal structure of the peritoneum, and the changes it undergoes in inflammation, in the frog. He holds that in this membrane, as in the cornea, there is a network of canaliculi, the fusiform swellings of which present the appearance of the so-called elements or nuclei. In the normal state they contain only the plasma of the blood; the amount of the plasma is increased by the increased circulation due to irritation; and the multiplication of tissue-elements arises from a segmentation of this protoplasm, and not from the division of cells and nuclei.

A. Boettcher ("Experimentelle Untersuchungen über die Entstehung der Eiterkörperchen bei der traumatischen Keratitis;" 'Virch. Arch.,' lviii, 362) has attempted to oppose Cohnheim's views by setting up central inflammation in the cornea of frogs, and is led by his experiments to agree with Stricker and other writers as to the local origin of pus-corpuscles.

J. Arnold ("Ueber Diapedesis," ib., 203 and 231) looks upon the passage of the blood-corpuscles through the walls of the capillaries, not as a wandering, but merely a passive, process, by which they are

pushed, by mechanical pressure, through the stigmata and stomata of the vessel wall. By the same mechanical process they may be carried away further, perhaps into the lymphatics. Their end is also passive, as he has noticed them, whether in groups or separately, becoming gradually colourless, and finally breaking up; and these appearances, he thinks, have led other writers to describe certain corpuscle-holding cells.

C. Binz (ib., lix, 293), while adopting Cohnheim's view as to the wandering of the white blood-cells in suppuration, holds that a supply of oxygen is needed in order that the cells may exert their amœboid motion. The origin of the oxygen he finds in the red blood-cells, which he believes supply it to the white. He has noticed that the white cells have become crowded and inactive in a blood-vessel during the process of inflammation, and have taken on amœboid movements, and so been able to pass through the walls only after a few red cells have made their way among them.

Apolant (ib., 299) writes on the relation of the white to the red blood-cells after suppuration. He gives the case of a boy, æt. 4 months, who presented a succession of small pustules or abscesses. When first noticed, the relation of the white to the red blood-cells was 1 to 20. As the child improved and the abscesses diminished the relation became 1 to 200. He thinks it probable that the leucocytosis was due to a draining off of the white blood-cells in the process of suppuration. His experiments on animals with a view to clearing up the question do not present any decided results.

S. Samuel, 'Der Entzundungsprozess,' Leipzig, 1873, pp. 90. F. König, "Ueber die Bedeutung der Spaltraume des Bindegewebes fur die Ausarbeitung der entzündlichen Processe," 'Volkmann's Vorträge,' ser. iii, No. 57. M. Benedikt, "Zur Lehre der Entzundlichen 'Kernwucherung'" 'Centralbl.,' 1874, 195. C. T. Eberth, "Die Entzundung der Hornhaut," ib., 81. R. v. Pfungen, "Studien uber Entzundung der Froschcornea," 'Wien. Med. Jahrb.,' 1873, 81. "Offener Brief an Herrn Professor Axel Key in Stockholm (from Stricker, on Inflammation of the Cornea)," ib., 496. Lordereau, "Sur les différents modes de production de la suppuration à la suite de l'érysipele et sur les variétés qu'elle présente," 'Arch. Gén.,' xxiii, 276. Grasset, "Des phénoménes histologiques de l'inflammation. Essai d'une nouvelle théorie basée sur la considération de la granulation moleculaire," 'Gaz. Méd.,' 1873, 3. Addison, "On Inflammation," 'Brit. Med. Journ.,' 1873, ii, 513. R. Thoma, 'Die Ueberwanderung farbloser Blutkörper von dem Blut in das Lymphgefass-system,' Heidelberg, 1873, pp. 48 (with four plates). G. Kerner, "Ueber den Einfluss des Krystallinischen und des Amorphin Chinins auf die weissen Blutzellen und den Eiterbildungs-process," 'Pfluger's Arch.,' vii, 121. E. B. Baxter, "The action of Cinchona Alkaloids and some of their congeners on bacteria and colourless Blood-corpuscles," 'Practitioner,' 1873, 321. C. Faber, "Ueber die röthen Blutkörperchen," 'Arch. d. Heilk.,' xiv, 481, 565. L. Landois, "Auflösung der rothen Blutzellen," 'Centralbl.,' 1874, 419. H. F. Parsons, "Blue Pus," 'Brit. Med. Journ.,' 1874, i, 205.

### *Contagion and Infection.*

G. Clementi and G. Thin publish ('Wien. Med. Jahrb.,' 1873, 292) the results of their experiments on putrid infection. These investigations were made for the purpose of comparing the results of inoculation with healthy and putrid blood; of seeing whether the blood of animals infected by putrid inoculation would produce the same con-

dition in other animals; and of discovering how small a quantity would produce such condition, and whether the septic power of the blood might be modified by dialysis, boiling, &c. Of two dogs, one was inoculated with 8 cm. of putrid ox blood, and died on the sixth day, after well-marked symptoms of fever. The second was inoculated with the same amount of blood taken from the first dog, but presented only slight symptoms of disturbance. The other animals experimented upon were guinea-pigs and rabbits, to the number of 123. Of 23 rabbits inoculated with healthy blood, only 4 died; of 68 inoculated with blood taken from artificially infected animals (Durchgangsblut), 54 died; and of 23 inoculated with putrid blood, 11 died. Boiling had very little effect, and dialysis none, in modifying the septic power; while in the case of animals inoculated with blood, which had been previously distilled or digested in alcohol, no death occurred. The autopsies of the fatal cases showed suppurative infiltration of the skin and subcutaneous tissue in the neighbourhood of the punctures; in addition to the presence of ordinary pus cells, the writers found countless large and small, round or irregular, granules, as to the nature of which they express no opinion. In some of the cases there was swelling, and in one ulceration of Peyer's patches.

J. B. Sanderson ("On the Infective Product of Acute Inflammation," 'Med. Chir. Trans.,' lvi, 345) gives the results of researches made during the early part of 1872 for the purpose of elucidating the pathology of acute secondary inflammation. The intention of the paper is to show—1. That in all acute suppurative inflammations the exudation liquids exhibit, if they are introduced either into the circulating blood, the serous cavities, or the cellular tissue, poisonous or infective properties. 2. That these properties manifest themselves in two directions, viz., in the production of increase of temperature, and in giving rise to secondary inflammation. 3. That the increase of temperature is the direct result of the presence of the poisonous or infective agent in the circulating blood. 4. That the secondary inflammations are of two kinds, which may be distinguished from each other by the terms acute and chronic, and that the acute secondary inflammations differ from the chronic, not merely as regards duration, but as regards their anatomical characters. The writer arrives at no conclusion as to the nature of the substance to which the pyrogenic property of exudation is due. The first part of the paper is taken up with a discussion as to the nature of the process of inflammation, with a view to the consideration of the manner in which a primary inflammation gives rise, on the one hand, to general constitutional disturbance, *i. e.*, fever; and, on the other, to the establishment of new foci of inflammation in other parts remote from the original seat of irritation or injury. In the second part an account is given of certain preliminary inquiries conducted in 1867-68. In the third and concluding part he states the necessity of exercising extreme caution in drawing inferences. But he thinks it has been shown (1) that that combination of malignant fever with intense and destructive inflammation to which the term septicæmia has been rightly applied, inasmuch as clinically and experimentally it is known to result from the existence in the blood of putrescent

albuminous matter, may also be produced by the introduction into the circulation or into the serous cavities, of small quantities of liquids derived directly from living tissues in certain states of inflammation; and that such states have the same distinctive character as those which distinguish inflammation of septicæmic origin. (2.) That pyæmia (the term being understood to denote a general febrile disorder of less virulence than septicæmia, accompanied by numerous disseminated inflammations, characterised chiefly by their proneness to suppuration) is so closely allied to septicæmia as regards its origin and essential nature that in these respects no line of distinction can be drawn between them; and that pyæmia, like septicæmia, may originate from a purely traumatic inflammation, independently of any infection with contagium derived from a previously existing pyæmic inflammation. (3.) That both of these conditions are characterised by the existence of microzymes in the infected liquids; and that the relation of intensity between different cases of septicæmic and pyæmic infection is indicated by the number and character of these organisms; so that in the most intense processes (*i. e.*, those which exhibit the character of septicæmia) the exudation liquids and the blood are crowded with actively moving bacteria, while in the more chronic processes the spheroidal and dumb-bell forms prevail, and the numbers of organisms found in the liquids are relatively inconsiderable. The author regards the question of the origin of the infective agent itself as entirely distinct from that of the intrinsic or extrinsic origin of the microzymes; it does not at all follow because these organisms come in from outside they bring contagium with them; for it may be readily admitted that they may serve as carriers of infection from diseased to healthy parts, or from diseased to healthy individuals, and yet be utterly devoid of any power of themselves originating the contagium they convey.

Orth ("Untersuchungen über Puerperalfieber," 'Virch. Arch.' lviii, 437) finds numerous micrococci, but no bacteria in the peritoneal fluid in cases of puerperal fever. Injection of this fluid into the abdomen of animals was followed by similar results, so far as inflammation and the presence of these organisms was concerned. Inoculation of corneæ with the fluid, and of other corneæ from those so inflamed, gave the appearance described by Eberth. The paper has plates of the appearances found.

Gigot-Suard ('Gaz. des Hôp.,' 1873, 69) has made experiments upon dogs with uric acid (uricæmia), and finds well-marked morbid changes. In several the blood became almost neutral, and the microscope and chemical analysis revealed the presence of crystals of uric acid, oxalic acid, and urate of soda. The skin presented erythematous, vesicular, and other affections; the mucous membrane, especially that of the mouth, nose, eyes, and bronchi, was more or less injected; the glands, especially the tubular glands of the rectum, were hypertrophied and even ulcerated. The lungs and liver were congested; the kidneys were in different stages of disease, from simple congestion of the cortex to advanced Bright's disease. The pericardium, pancreas, spleen, brain, and spinal cord were injected. The lymphatic glands were in

some cases only swollen, in others they were cheesy. In one case the uric acid produced symptoms of diabetes.

v. Paschutin, "Einige Versuche über Fäulniss und Fäulnissorganismen," 'Virch. Arch.,' lix, 490. K. Ledeganck, "Du rôle des organismes parasitaires dans la production de la Necrose," 'Presse Med. Belge,' 1874, 89. C. Gerhardt, "Zur Naturgeschichte der acuten Infectionskrankheiten," 'Deut. Arch.,' xii, 1. A. Guérin, "Du rôle pathogénique des ferments dans les maladies chirurgicales," 'Compt. Rend.,' lxxviii, 782 (and see L. Pasteur on this paper, ib., 867). Rodet, "Des Maladies virulentes," 'Lyon Med.,' xv, 274). F. A. Kehrer, "Ueber das putride Gift," 'Arch. f. Exp. Path. u. Pharm.,' ii, 33. A. Hillier, "Ueber die Veranderungen der rothen Blutkorperchen durch Sepsis und Septische Infection, nebst Bemerkungen über Microcyten," 'Centralbl.,' 1874, 323. T. Leber, "Entzundung der Hornhaut durch septische Infection," ib., 1873, 129. M. Wolf, "Ueber Pilzinjectionen," ib., ib., 114. Id., "Zur Bacterienfrage," 'Virch. Arch.,' lix, 145. Orth, "Ueber die Form der pathogenen Bacterien," ib., ib., 532. Martini, "Beobachtungen uber Micrococcenembolien innerer Organe und die Veranderungen der Gefasswand durch dieselben," 'Arch. f. Klin. Chir.,' xvi, 157. Bochefontaine, "Note sur quelques expériences relatives à l'action de la quinine sur les vibrioniens et sur les Mouvements amiboides," 'Arch. de Phys.,' v, 389. E. Nedswetzki, "Zur Histologie des Menschenblutes; Kleine sich nach aller Richtungen hin bewegende Korperchen als constante Bestandtheile des normalen Menschenblutes," 'Centralbl.,' 1873, 147. M. Laptschinsky, "Zur Pathologie des Blutes," ib., 1874, 657. E. Crisp, "Specimens of the disease in the South of Ireland amongst Poultry" (Bacteria in the blood), 'Path. Soc. Trans.,' xxv, 281. Hyvertl, "De l'inoculation du Cancer chez le lapin," 'Gaz. des Hop.,' 1873, 386. W. Legg, "On the Inoculability of Epithelioma," 'Brit. Med. Journ.,' 1873, ii, 344.

*Tuberculosis? Inoculability of Tubercle.*

Rindfleisch is reported at length ('Berl. Klin. Woch.,' 1873, 68, 81) on the subject of tuberculous inflammation. After stating that the results of experiments on animals, by proving that cheesy masses of any sort can set up miliary tubercle, so far take away from the latter its specific character, and degrade it to a product akin to connective tissue, he lays down that there is a special form of inflammation which goes on to caseation—the specific product of a constitutional diathesis. It is characterised histologically by the formation of more or less circumscribed infiltrations of connective tissue, the microscopical appearances of which he describes minutely. The symptoms of this tuberculous inflammation he classifies as, 1, primary affections of various organs with the character of phthisis or ulceration. 2. Secondary affections, through local infection; miliary tubercles of the lymphatic system and connective tissue, with scrofulous tumours of the lymph-glands. 3. Tertiary affections—infection of the entire organism: miliary tuberculosis of the different organs, developed pre-eminently in the small vessels. Fatal cachexia and hereditary diathosis depend upon the absorption of the softened cheesy masses, the diathesis exhibiting itself as a reproduction of vascular tubercles or as scrofulosis. He sketches the process as it occurs in the lungs, where it commences as a tuberculous infiltration of the wall of the small intra-lobular branches of the bronchi.

O. Bollinger ('Arch. f. Exp. Path. u. Pharm.,' i, 356) has made three series of experiments on 10 carnivorous animals (7 dogs and 3 cats), and 9 herbivorous (7 goats and 2 sheep). In the first series he made

use of simple inoculation; in the second, inoculation combined with "tuberculous feeding;" in the third, the latter alone. By inoculation with tuberculous matter from the human subject he produced general miliary tuberculosis in the dogs, but only a slight or local action in the other carnivora. Inoculation combined with tuberculous feeding produced in the goats peritoneal tubercles, with tuberculous ulceration of the intestinal mucous membrane, and lesion of the mesenteric glands. The contents of the bronchi of an animal of the bovine species affected with tubercle set up tubercle when inoculated, and probably also when swallowed. Carnivorous animals may be fed with impunity on fresh tuberculous matter taken from animals of the bovine species; but herbivora fed on tuberculous and cheesy matter undergo infection, shown by intestinal ulcerations, hyperplasia of the intestinal follicles, swelling and cheesy change of the mesenteric glands, and often by the presence of tubercles in the peritoneum, liver and lungs. Two months suffice in these cases to kill the animal. No tuberculosis is produced by feeding goats on cheesy matter. He thinks there is a remarkable resemblance between the lesions observed in animals thus fed and scrofula in the human subject; especially in the enlargement and degeneration of the mesenteric and cervical glands. No distinction can be made between infectious tuberculosis and infectious anthrax. He concludes with a review of all the experiments made on the subject. [The author has already ('Virch. Arch.,' lv, 290) satisfied himself of the identity of miliary tuberculosis as it occurs in cats and in the human subject.]

Chauveau ('Lyon Méd.,' xiv, 203) insists that his experiments on the transmission of tuberculosis by the digestive organs lead to the same result, and challenged the members of the French Association for the Advancement of Science to be present at the autopsy of two calves, which he had fed on tuberculous matter.

Colin, on the other hand ('Compt. Rend.,' lxxvi, 1131), asserts that tuberculosis and phthisis are not produced by the introduction of matters containing fresh tubercle (muscle, blood, bronchial secretion). He believes that the contradictory results obtained by different experimenters may be explained partly by the fact that the observations were made on animals already affected with tuberculosis; partly by the fact that by forcing the animals to swallow the tuberculous matter portions of it fell into the respiratory passages, and there set up cheesy inflammations of greater or less extent.

G. Bizzozero ("Ueber die Tuberculose der Haut.," 'Centralbl.' 1873, 292) publishes the case of a child, æt. 15, who for some time had presented symptoms of scrofula. On post-mortem examination there was chronic suppurative inflammation of the left ankle-joint and the phalangeal joint of the right thumb; tuberculosis of the lungs with peri-bronchitis; extensive tuberculosis and ulceration of the intestines; fatty degeneration, with chronic interstitial inflammation of the kidneys; fatty infiltration of liver; an abscess the size of a hazel-nut, with cheesy contents, under the skin of the left forearm; mucous cutaneous ulcerations, especially on the elbows, the right side of the face, and the left shoulder. These ulcerations were of various sizes and

depths, some entirely superficial; their margins were slightly undermined; the skin in their neighbourhood was swollen and pigmented, and several small hard knots were found in the subcutaneous tissue beneath them. On microscopical examination the papillæ of the skin surrounding them were enlarged, their vessels dilated, and the connective-tissue cells pigmented. Numerous wandering-cells were seen in the walls of the vessels and the sweat-glands. Numerous small tubercles were found in the bases and margins of the ulcers and in the skin surrounding them. They were made up of giant-cells, with numerous processes, nuclei and epithelioid cells. In some places these cutaneous tubercles seemed to lie close under the epidermis. The small subcutaneous knots mentioned above gave the same appearances, as did also an examination of the inguinal glands, the lungs, and intestines. After referring to another case, in which he found the same giant-cells in the skin of a woman, æt. 50, with well-marked sequelæ of syphilis and tuberculosis of the apices of the lungs, the writer thinks it probable that scrofulous ulcerations of the skin are due very often to tuberculosis.

Buhl, "Lungenentzündung, Tuberculose und Schwindsucht," Munich, 1872 (see abstract under "Phthisis"). O. Schuppel, "Untersuchungen uber Lymphdrusen-Tuberculose," Tubingen, 1871, pp. 142. Id., "Ueber die Entstehung der Riesenzellen im Tuberkel," 'Arch. d. Heilk.,' xiii, 69. Id., "Ueber die Identitat der Tuberculose mit der Perlsucht," 'Virch. Arch.,' lvi, 38. T. Hering, "Histologische und Experimentelle Studien uber die Tuberculose" (with six plates), Berlin, 1873. L. Thaon, "Recherches sur l'Anatomie pathologique de la tuberculose," Paris, 1873, pp. 106 (with two plates). Id., "De l'origine de la granulation tuberculeuse," 'Arch. de Phys.,' v. 224. Colin, "La tuberculose est-elle virulente et inoculable à la manière de le plupart des maladies contagieuses," 'Bull. de l'Acad. de Méd,.' 1873, 629. E. Klebs, "Die küntsliche Erzeugung der Tuberculose," 'Arch. f. Exper. Path. u. Pharm.,' i, 163. Saint-Cyr, "Transmission de la tuberculose par les voies digestives" (in opposition to Chauveau), 'Lyon Med.,' xvi, 225. C. Friedländer, "Ueber locale Tuberculose," 'Volkmann's Vorträge,' ser. iii, No. 64. Köster, "Ueber locale Tuberculose," 'Centralbl.,' 1873, 913. Lebert, "Veranderungen der Körperwärme in Laufe der Tuberculose," 'Deut. Arch.,' xi, 43. Féréol, "Note sur quelques ulcéres spéciaux développés au voisinage des orifices naturels chez les tuberculeux" (two cases), 'Presse Med. Belge,' 1874, 267. Guinier, "Sur les conditions d'existence de la matiére tuberculeuse, et sur la curabilité de la tuberculose" (with discussion thereon), 'Lyon Med.,' xvi, 155. S. Wilks, "Remarks on the tuberculous and strumous diathesis," 'Lancet,' 1873, i, 807. E. Smith, "Acute general Tuberculosis" (in children), 'Med. Times and Gaz.,' 1874, i, 445, etc. J. Grangé, "Des symptomes de la Tuberculisation chez les enfants," Paris, 1874, p. 87. Charrin, "Tuberculose géneralisée chez un fœtus de sept mois et demi," 'Lyon Med.,' xiii, 295. H. Rendu, "Recherches cliniques et Anatomiques sur les paralysies liées à la meningite tuberculeuse," Paris, 1874, pp. 151. L. Smith, "Tubercular Meningitis' (female child, æt. 11 months, general tuberculosis, cheesy bronchial glands), 'New York Med. Journ.,' xviii, 196. Renault, "Tuberculose pleurale, caillots cardiaques, purpura; abcés metastatiques dans les reins," 'Union Méd.,' xv, 757. Lebert, "Die tuberculösen Erkrankungen der Affen," 'Deut. Arch.,' xii, 42. "Discussion on the Anatomical Relations of Pulmonary Phthisis to Tubercle," 'Path. Soc. Trans.,' xxiv, 284. Shand, "Cases of Acute Tuberculosis," 'Lancet,' 1874, ii, 444.

## *Temperature and Fever.*

C. Hüter ("Ueber den Kreislauf und die Kreislaufsstörungen in der Froschlunge. Versuch zur Begründung einer Mechanischen Fieberlehre," 'Centralbl.,' 1873, 65), in making observations on the circula-

tion in frogs which he had infected by the injection of fluids containing monads, is inclined to hold the view suggested by former experiments, and supported by Traube, Senator, and others, that fever consists essentially, not in increased heat production, but in decreased loss of heat. But in place of the hypothesis put forward by Traube, which Hüter thinks does not hold for all phases of fever, and is somewhat obscure in its mode of origin, viz., that there is a paralysis of the small cutaneous arteries, he urges the theory that the smallest vessels, including those of the lung, are temporarily cut off from the general circulation of the body.

H. Senator (ib., 84) follows this paper with a report of his own experiments made on the vessels of the ear of albino rabbits, with a view to prove whether, as most authors hold, there is in fever a general relaxation and dilatation of the vessels; a permanent contraction, as Traube supposes, of the smallest arteries; or, as he thinks himself, a periodical contraction of them, varying according to time and place. These fresh experiments demonstrate directly, as it appears to him, that there is "neither a paralysis nor a permanent tetanus of the vessels during the height of fever," and lead to the conclusion which Heidenhain ('Pflüger's Arch.,' v, 110), had reached by another path, "that there are pathological conditions under which the irritability of the vaso-motor nerves, especially those of the cutaneous arteries, is abnormally increased." He is only confirmed in his own view that through contraction of the cutaneous vessels from time to time there is, in fever, a restriction in the loss of heat.

Ch. Bäumler (ib., 179) takes up the question clinically, and thinks that it is proved unequivocally that in the height of fever, with normal heart action, the cutaneous arteries are dilated. In the first week of enteric fever, and in various other febrile conditions, at the commencement of typhus or variola, in pneumonia and traumatic fever, the patients present more or less redness of the skin. If the skin be lightly irritated by the finger-nail, a pale streak, commencing thirty seconds later at the point of irritation, spreads peripherally, lasts for about four minutes, and disappears as it came. The phenomenon ceases to show itself after the first few days of severe febrile states.

T. Jürgensen ('Die Körperwärme des Gesunden Menschen,' Leipzig, pp. 100) has made several thousand observations on the temperature taken in the rectum of healthy adults. He concludes that the average day temperature, under the most varied influences, is typically constant about 37·2° C. (98·9° F.), the tendency being always to keep this mean, any fluctuation from it being followed by "compensation." The period of twenty-four hours shows high day, and low night, temperatures, the former continuing for a longer time than the latter, and beginning as a rule at 8 a.m., while the latter begin at 10 p.m. The highest day reading is about 37.34° C. (99·2° F.); the lowest night reading about 36·94° C. (98·5 F.). The readings during the several hours of the twenty-four may vary considerably, following one of two types, which the author describes as the straight-line type, and the type of distinctly marked maximum and minimum. Taking nourishment elevates the temperature, "its calculation, however, depending

on the greater or less amount of heat required by the law of compensation." Cold baths (10° C.) cause marked decrease in temperature. Their first immediate after-effect is essentially a cooling of the whole body; but this is followed by an absolute increase in temperature—a confirmation of the law of compensation. Quinine has very little influence on the temperature of the healthy body, the curve, however, showing a tendency to follow the "straight-line type." According to the writer the law of compensation shows itself in disease, when elevations of temperature are caused by some hurtful agent, and where by certain means it is possible to bring it down to the normal. For this reason cold baths, which in the healthy subject increase the temperature, have no such effect in febrile cases; while quinine, inactive in the healthy subject, shows its effect in the course of fever.

E. Casey gives ('Lancet,' 1873, i, 200) a table of the diurnal variations of temperature as observed in his own case. The mean temperature was 98·07°; the highest reading was 99·6°, the lowest 96·4°. In the morning before getting up the temperature was below the mean of the day. A rise then began, continuing till midday. From this time till 7·30 p.m., at which hour the maximum was reached, the temperature was considerably above the mean height. Then it fell rapidly till 2 a.m., when the minimum occurred.

F. Riegel ('Deut. Arch.,' xii, 79) finds from careful observations that after large doses of wine or alcohol, given at short intervals, the temperature in the rectum and axilla very frequently, though not always, falls some tenths of a degree after a short time; in some cases, however, it rises. This occurs both in healthy persons and those already in a condition of pyrexia.

J. Laycock, "On the Clinical Observation and Practical Estimate of Morbid Temperature," 'Med. Times and Gaz.,' 1874, i, 311. J. Finlayson, "Lecture on the Use of the Clinical Thermometer," 'Brit. Med. Journ.,' 1874, i, 261. E. Seguin, 'Thermomètres Physiologiques et Thermomètrie Mathématique: leur application à la médicine, à la chirurgie, à l'education,' Paris. F. Neumann, "Experimentelle Untersuchungen über das Verhalten der insensiblen Ausgabe in Fieber," 'Inaug. Diss.,' Dorpat, 1873, pp. 67. T. Ackermann, "Ueber die physiologischen Wirkungen des Digitalins auf den Kreislauf und die Temperatur," 'Deut. Arch.,' xi, 135. Parkes, "On the Influence of Brandy on the Bodily Temperature, the Pulse, and the Respirations of Healthy Men," 'Proc. Roy. Soc.,' 1874, No. 150. P. Daub, "Einfluss des Alkohol auf die Temperatur," 'Centralbl.,' 1873, 466. P. Lewitzky, "Einfluss der Bacterien auf die Temperaturhöhung bei Thieren," ib., 723. J. Schrieber, "Ueber den Einfluss des Gehirns auf die Korpertemperatur," 'Pfluger's Arch.,' viii, 576. F. Riegel, "Zur Lehre von dem Wärmeregulation," 'Virch. Arch.,' lix, 114. V. Dobczcanski u. B. Naunyn," 'Beiträge zur Lehre von der Fieberhaften (durch pyrogene Substanzen bewirkten) Temperaturhöhung," 'Arch. f. Exp. Path. u. Pharm.,' i, 181. Rapund, "Das Chinin in den Kinderpraxis, besonders bei fieberhaften Krankheiten und Keuchhusten," 'Deut. Klin.,' 1874, 51. H. Senator, "Untersuchungen uber den fieberhaften Process und seine Behandlung,' Berlin, 1873, pp. 208. C. Maclean, "The Etiology of Pyrexia," 'Brit. Med. Journ.,' 1873, ii, 429. T. J. Maclagan, "A New Theory of Fever," 'Lancet,' 1873, i, 437. Huppert, "Zur Kenntniss des Verhaltnisses locale Temperaturhohung zur Gesammttemperatur," 'Arch. d. Heilk.,' xiv, 73. Hankel, "Zur Messung der Temperatur der Menschlichen Haut," ib., ib., 157. E. Albert and S. Stricker, "Untersuchungen uber die Wärmökonomie des Herzens und der Lungen," 'Wien. Med. Jahrb.,' 1873, 30. A Beau, "Etude Physiologique et Clinique sur la période de défervescence dans les Maladies aigües

fébriles,' Paris, 1873. Lebert, "Veränderungen der Körperwärme im Laufe der Tuberculose," 'Deut. Arch.,' xi, 43. A. Godfray, "Fracture of Cervical Spine; great Rise of Temperature after Death" (109° F. in rectum an hour and a half before death), 'Lancet,' 1874, i, 904. J. F. Goodhart, "On Post-mortem Temperatures," 'Brit. Med. Journ.,' 1874, i, 303. Strassburg, "Experimenteller Beitrag zur Wirkung des Alkohols in Fieber," 'Virch. Arch.,' lx, 471.

*Infection from Poison of Animals.*

J. Fayrer, "Experiments on the Poison of the Rattlesnake," 'Med. Times and Gaz.,' 1873, i, 371. Id., "Snake-poisoning in India," ib., ii, 249, 492. V. Richards, "The Treatment of Snakebite by intravenous Injection of Ammonia," ib., i, 639. H. P. E. White, "A Case of Cobra-poisoning treated by Incision and Liquor Potassæ, locally and internally, terminating fatally," ib., ii, 413. G. B. Halford, "Snake-poisoning and its Treatment," ib., ii, 90. Id., "The Treatment of Snake-poisoning," ib., 1874, i, 53. C. R. Francis, "Experiments on Snake-bite," ib., 1874, ii, 259. Putz, "Zur Behandlung des Schlangenbisses durch subcutane Injection von Liquor Ammon. Caust.," 'Berl. Klin. Woch.,' 1873, 330. Kleinschmidt (on same), ib., 1874, 286. A. S. Taylor, "Action of the Poison of the Cobra di Capello, or Naja Tripudians," 'Guy's Hosp. Rep.,' xix, 297. W. F. C. Beattie, "Recovery from Bite of a Rattlesnake" (man, æt. 52), 'New York Med. Journ.,' xviii, 619. Chapple, "Case of Snake-bite; death in an hour and a quarter," 'Lancet,' 1873, ii, 41. J. Mulvany, "Case of Snake-bite; a Tamil woman far advanced in Pregnancy bitten by a Tic Pologna; Recovery of the Mother and death of the Child," ib., 1874, ii, 446. J. Rogers, "A Case of Charbon" (Sting of bluebottle-fly; death on second day), ib., 1873, ii, 42. W. Odell, "Death from the Sting of a Wasp" (man, æt. 74; autopsy), ib., ib., 333. T. Patterson, "Case of Mussel-poisoning," ib., i, 323.

*Hydrophobia.*

W. A. Hammond gives ('New York Med. Journ.,' xx, 261) the results of the post-mortem examination of a man who died of hydrophobia. The facts have to be hunted through indignant effusions against the jury who were empanelled on the case, and others. The writer found granular degenerations of the cortical substance of the brain, of the nuclei of the pneumogastric, hypoglossal, and spinal accessory nerves; extravasation of blood in the medulla oblongata, granular and fatty degeneration of the grey substance of the spinal cord in its upper part, which was alone examined, and of the nerve-roots, together with nuclear proliferation of the neuroglia cells of the white substance. The article, which is polemic throughout, is illustrated by woodcuts of the microscopical appearances found.

Féréol read a paper ('Gaz. des Hôp.,' 1874, 677) before the Paris Academy of Medicine, on a case of hydrophobia occurring in a man two years and a half after the bite of a mad dog, and fatal in three days. He was, up to the time of the attack, in good health, not given to drink, and did not present any symptoms of mental disease; he had suffered from lowness of spirits for a few days before the rabies showed itself. "The autopsy showed the usual lesions." The author concludes his paper with the following propositions:—(1.) The period of incubation is generally two months, but may, in exceptional cases, last longer. (2.) The symptoms of the disease may assume varying aspects under the influence of drink, insanity, hysteria, &c. But the respiratory spasm, the peculiar mode of getting rid of the mucus secreted, the symptoms described under the name "aërophobia," belong to rabies, and are sure diagnostic signs of its existence, in the presence of

any complication. (3.) Idiopathic or imaginary rabies, which is not generally fatal, may terminate in death, but the symptoms described above will be absent. (4.) The bronchial secretion plays an important part in the spitting ("sputation") of hydrophobic patients, and the principal symptoms may be referred to the function of respiration.

Lemoine, "Un cas de rage" (man, æt. 37; autopsy), 'Lyon, Med.,' xiv, 224. Nepveu, "Un cas de rage" (youth, æt. 17; death four months after bite; autopsy); 'Gaz. Med.,' 1873, 630. T. Partridge, "Case of Hydrophobia (man, æt. 39; death; no autopsy), 'Brit. Med. Journ.,' 1873, i, 142. Philpotts, "On Canine Madness; when communicable and when not communicable to Man," ib., ib., i, 254. F. Rhodes, "Case of Hydrophobia in a Child" (boy, æt. 16 months; death in four days), ib., 1874, i, 706. T. F. Hopgood, "Two Cases of Hydrophobia" (boys; death; one autopsy), 'Lancet,' 1873, i, 664. H. Muscroft, "Two Cases of Hydrophobia, caused by the bites of dogs not recognised as rabid" (men; death; one autopsy), ib., 1874, ii, 513. Maclean, "Hydrophobia" (with cases), ib., ib., 654. F. W. Lorinser, "Zwei Opfer der Hundswuth," 'Wien. Med. Woch.,' 1874, No. 14, p.265. W. Wallis, "Treatment of Hydrophobia," 'Brit. Med. Journ.,' 1874, ii, 645. J. Haddon, "The Present Treatment of Bites by Dogs, as being unsound in Theory and unsuccessful in Practice," 'Med. Times and Gaz.,' 1874, ii, 492. Weinlechner, "Beitrag zur Kenntniss der Hydrophobie," 'Wien. Med. Woch.,' 1874, No. 28, 613. Muscroft, "Hydrophobia and Rabies," 'Lancet,' 1874, ii, 864. F. Taylor, "Case of Hydrophobia" (girl, æt. 8, autopsy), 'Brit. Med. Journ.,' 1874, ii, 681.

### *Hay Fever; Summer Catarrh.*

Binz ('Practitioner,' 1874, April, 269) recalls attention to the case of Helmholtz (abstracted in this Report, 1869-70, 51), and his successful treatment of hay fever, by injecting a solution of quinine. Frickhöfer has communicated a case of a similar kind ('Virch. Arch.,' li, 176). Busch has succeeded in two cases with the same drug; a third patient was obliged to abstain from the use of quinine, as it produced unbearable irritation of the nerves of the nose. Helmholtz told Binz in 1872 that his fever was quite cured, and that two other persons to whom he had advised this mode of treatment had used it with success.

E. Decaisne ("De l'asthme d'été ou fièvre de foin," 'Compt. Rend.,' lxxvii, 535) would strike hay fever out of the nosological catalogue. He holds that the affection attacks indifferently those who are and who are not exposed to hay and other dried plants, these having only an indirect influence, marked especially in patients affected with emphysema. The symptoms may appear at any season of the year, and do not present a periodic type. The dyspnœa occurring in the disorder is only due to an extension of irritation of the conjunctival, nasal, and pharyngeal mucous membranes, such as is common in influenza. His conclusions are based on fifty-one cases, observed in the course of eight years.

C. H. Blackley, 'Experimental Researches on the Causes and Nature of Catarrhus Æstivus (Hay-fever or Hay Asthma),' Lond., 1873, pp. 202. J. B. Bradbury, "Treatment of Hay-fever," 'Brit. Med. Journ.,' 1874, i, 514.

### *Dengue.*

M. Sheriff sketches ('Med. Times and Gazette,' 1873, ii, 543) the

history of the epidemic of dengue in Madras in 1872. After touching on the historical part of the subject, he states that the prevalence of the affection was much greater than that of any other epidemic, for many years, in the district of Madras with which he was connected, especially during the months of August, September, and October. The oldest patient was about 80 years of age, the youngest about two months. Males and females fell ill in about equal numbers; all ranks were alike attacked. The essential symptoms observed in the last epidemic were pyrexia of a continued type and short duration, very often exhibiting a remittent or intermittent type; pain, swelling, and redness of the joints, and in severe cases pain in the muscles and bones; an eruption, not invariably present, resembling several of the exanthematic type, seen mainly on the face, neck, chest, and hands, having a duration of from 12 to 72 hours, followed always by desquamation; and headache, not always present. The sequelæ were found to be convulsions in children, and in a few cases in adults; permanent pain, stiffness and swelling of the joints, pericarditis, general paralysis and amaurosis in one case, and amaurosis in two others; diarrhœa and dysentery, debility, conjunctivitis, derangement of the brain, abortion. In some few cases there was a relapse after a complete apyretic interval, extending sometimes to many months. The writer considers the period of incubation to be from three to five days. "The exciting cause is a specific contagion propagated by human intercourse." The paper concludes with some remarks on its diagnosis and treatment.

Martialis, "La Dengue d'après les documents Anglais de Madras et de Calcutta, et les observations recueillies dans les possessions Françaises de l'Inde," 'Arch. de Méd. Nav.,' xxi, 21. R. T. Lyons, "Dengue Fever" (correction of statement made by Dr. Smait), 'Lancet,' 1873, ii, 893. Manson, "The Sequelæ of Dengue Fever," ib., ib., 866. A. Buez, "La dengue ou Abourakab" (epidemic at Djeddah), 'Gaz. des Hop.,' 1873, 501. Vauvray, "Contributions à la Geographie Médicale; Port Said" (for an account of the epidemic of Dengue in 1871, see p. 80 of the paper), 'Arch. de Méd. Nav.,' xx, 161. Cotholendy, "Relation de l'épidémie de Dengue qui a régné a Saint-Denis (Réunion) pendant les mois de Février, Mars, Avril, et Mai, 1873," ib., ib., 190. F. Labadie-Lagrave, "Dengue ou Fièvre eruptive Epidemique de l'Inde," 'Gaz. hebd.,' 1873, 761. "De le Dengue Fever et l'épidémie qui règne actuellement dans l'Inde," 'Union Méd.,' xvi, 358. Slaughter, "On Dengue," 'Army Med. Rep.' for 1872, xiv, 432.

## *Cerebro-spinal Meningitis.*

E. Kotsonopulos ("Beiträge zu epidemischen Cerebro-spinal Meningitis," 'Virch. Arch.,' lviii, 51) gives an account of two small epidemics of the affection in Nauplia, since his account of the one occurring in 1869 (see last Report, p. 44). In the first there were seven cases, and in the second four, the histories of which he gives, with the autopsies of four fatal cases. The symptoms were similar to those noticed in the epidemic of 1869. Three only recovered. In one only of the fatal cases examined was there hyperæmia of the membranes of the brain and cord; in the others there was some exudation present. At the commencement of his paper he gives some further particulars of the thirty-seven cases which recovered in the first epidemic, and have been watched by him in the interval. Thirty made a complete

recovery, seven still suffer from the sequelæ of the disease; three are completely deaf, one hears only with the right ear, two have defective hearing power; and the seventh, a man of 25, perfectly sound before his illness, had a maniacal attack.

T. B. Upham gives a full report ('Fifth Ann. Rep. Board of Health of Massachusetts,' p. 517) of the epidemic of cerebro-spinal meningitis in that state in 1873, founded on details more or less complete of 517 cases, the youngest 5 weeks, the oldest 70 years. In the 'Boston Med. and Surg. Journ.' (1874, vol. xci, 221) he prints some "additional reflections on the epidemic, giving three tables of the relative frequency of symptoms in 315 cases. He concludes that the indications for rational treatment are to husband the strength; to combat the tendency to congestion of the brain and spinal cord; to mitigate the intense pain; to calm the nervous excitement; and to nourish and support the system till the exuded morbid products may be removed by nature.

J. L. Smith ('Amer. Journ. Med. Sc.,' lxvi, 313) discusses the causes, contagiousness, and other circumstances regarding the affection. He discusses the three theories held in reference to its nature; that it is a local disease occurring epidemically; that it is akin to typhus fever; and that it is a disease *sui generis*, concluding that it belongs to the latter category. He gives brief notes of the anatomical appearances found in 76 fatal cases, arranged in four series, according to their duration of three days, three to twenty-one days, over twenty-one days, and cases of unknown duration. As to treatment, he remarks that in New York the bromide of potassium is most in favour, as diminishing the calibre of the arterioles, and consequently the hyperæmia of the cerebro-spinal axis and its meningeal covering, and acting, at the same time, as a powerful sedative to the nervous system.

A. Laveran believes ('Gaz. Hebd.,' 1873, 314) that cerebro-spinal meningitis is an anomalous form of scarlet fever. He looks upon all treatment, except by opium, as useless. Among other facts in support of the former opinion he urges that almost all the eruptive fevers, especially scarlet fever, predominate at the same time with cerebro-spinal meningitis (! *Rep.*).

Chauffard writes (ib., 359) a long article in opposition to Laveran's views, giving his experience of the epidemics of 1848-49, and 1849-50.

B. D. Giffard, "Notes on some Cases of Cerebro-spinal Meningitis," 'Boston Med. and Surg. Journ.,' lxxxix, 277. J. Little, "Cerebro-spinal Meningitis treated by Hypodermic Injections of Morphia" (girl, æt. 12; recovery), 'Brit. Med. Journ.,' 1874, i, 586. A. Zimmerman, "Meningitis Cerebro-spinalis epidemica als terminale Complication einer chronischen Encephalopathie," 'Deut. Arch.,' xii, 181.

## *Intermittent Fever.*

L. Colin ('Sur l'Intoxication tellurique," 'Compt. Rend.,' lxxvii, 1035) publishes a second note on the effect of soil on malarial poison. He argues that heat, moisture, and decomposing vegetation are powerless in producing malaria without some change in the soil, which he

insists plays a very considerable part in its development; that marshy water does not produce intermittent fever, but only acts as one of the numerous baneful causes which make the constitution less able to resist morbid influence; and that it will perhaps be more easy to discover the fever germ in the surface of ground that has been lately cleared (défriché) than in the atmosphere of marshes.

The 'British Medical Journal' (1873, i, 54) quotes a statement made in the *Grevillea* (1872, No. 6) that a Dr. Bartlett, of Chicago, had been able to find certain fungi in the bottom of the Mississippi, opposite Keokuk, Iowa, lat. 10° 25′, in which Salisbury (see 'Bien. Rep.,' 1869-70, 54) believed he had discovered the germs of ague. The sender remarks in reference to the plants that "in the locality of their growth they are to be seen in myriads, and near them, even on elevations of over one hundred feet, everybody had the ague. The cause of this disease seemed *pari passu* with that of the plant."

Accounts of epidemics of malarial fever, and of various localities in which diseases of this type are common, are contained in the papers given in the bibliography below.

Bohn writes ('Jahrb. f. Kinderheilk.,' vi, 115) on the varieties of ague as it occurs in children. In some cases in which the mother was suffering from the affection, remarkable movements of the fœtus in utero proved apparently that it also was affected; the fact that children are born in a very cachectic state and with enlarged spleens seems, to him, to point to the same occurrence. From 465 cases which he tabulates he concludes that the greatest tendency to ague in children is between the years of 2 and 7, the quotidian being the most frequent type, and the evening the most frequent period of the paroxysms. He discusses, at length, the various symptoms, and describes certain irregular forms of the affection, which were accompanied by certain unusual symptoms, connected either with lesion of the nervous system, or with catarrh of the mucous membranes of the intestines and lungs.

Henoch writes ('Berl. Klin. Woch.,' 1873, 300) in reference to the occurrence of "Febris intermittens perniciosa" in a child aged nine years. The first paroxysm lasted an hour and a half, the second three hours, during which death by asphyxia seemed to be imminent. Compression of the carotids and injection of morphia were employed without success, and the child was then placed under chloroform. The paroxysm rapidly passed off, the cyanosis disappeared, and the child slept. Quinine was afterwards given, and with the exception of one slight attack the paroxysms did not recur. From the result of the treatment, from the occurrence of an exactly similar case a few days later, and from the existence of malarial fever in Berlin at the time, Henoch looks upon the above as a case of pernicious malarial affection, the symptoms being probably due to anæmia of the brain from spasm of the cerebral arteries.

Daga ('Bull. gén. de Thérap.,' t. 85, p. 454) gives a similar case in a man, æt. 35, who had suffered from malarial fever in Algiers. The paroxysms were quotidian, occurring during the night, and accom-

panied by maniacal delirium and attempts to commit suicide. The patient recovered under the use of quinine.

Burq ("Fièvre Intermittente ortieé," 'Gaz. des Hôp.,' 1873, 867) contributes a case of "Febris intermittens urticata" in a man, æt. 50; here also the fever was quotidian, and was accompanied, when at its height, by delirium, hallucinations, and a general eruption of urticaria over the whole body. After the disappearance of the other symptoms the brain still remained affected, and the patient was placed in an asylum.

L. Colin ("Sur la migration du pigment sanguin à travers les parois vasculaires dans la mélanémie palustre," 'Gaz. Hebd.,' 1873, 35) holds that in the morbid state, to which the term "palustral melanæmia" is applied, the blood contains pigment in such considerable quantities as to occasion frequently, by its accumulation, an aneurismal distension and even rupture of the walls of the small vessels. The pigment is either free or contained in the leucocytes. Again, the walls of certain vessels are so stained with this colouring matter that organs whose natural colour is white, as, for instance, the brain, present a slaty tint; the pigment-granules are found incrusting the internal surface of the vessels, the walls themselves, and sometimes occur as an opaque layer outside them. He suggests that there is an intimate relation between the pigment-matter of the blood and the pigmentation of other tissues, in which probably the leucocytes are the most active agents.

S. v. Basch gives ('Wien. Med Jahrb.,' 1873, 233) a case of melanæmia occurring in a medical man, æt. 32, who had suffered for a long period from intermittent fever, and had become excessively cachectic. He had complained latterly of pain in the urethra on passing water. On examining the urine crystals of phosphate of lime, and flakes and cells containing pigment, were found in pretty large quantities. The same pigment-cells were found in the blood. The urine did not contain albumen The patient improved under the employment of quinine and carbonic acid baths, but the urine and blood still contained pigment.

The titles of the papers given below show the extent to which eucalyptus globulus and carbolic acid have been commended in the treatment of different forms of intermittent fever

T. Bassignot, "Étude sur la fièvre Endémo-épidémique qui règne a la Réunion," 'Arch. de Méd. Nav.,' xx, 279. Bourel-Roncière (a Description of Glandular Swellings in this affection, in an account of the diseases of Rio Janeiro), ib., 355. J. Mahé, "Fièvres-paludéennes; Anémie et cachexie d'origine palustre paludéenne" (based on cases observed in the Marine Hospital at Brest), ib., xxi, 74. F. L. Galt, "Notes on Malarial Diseases of the Marañon Valley," 'Amer. Journ. Med. Sci.,' lxv, 112. J. M. Hunter, "On the Remittent Fever of the West Coast of Africa," 'Brit. Med. Journ.,' 1873, ii, 629. E. Renard, "Topographie Médicale de la Calle et étiologie de la fièvre Intermittente," 'Réc. de Mém. de Méd. Milit.,' xxix, 545. E. Bachon, 'De l'Infection palustre et Particulièrement de la Fièvre bilieuse," ib., 225. Monestier, "Fièvre ictéro-hématurique ou bilieuse hématurique" (man, æt. 33, inhabitant of La Réunion; analysis of urine, &c.), 'Gaz. des Hop.,' 1873, 820. Moreley and Lavit, "Les pneumonies pernicieuses ou à accés," ib., 50. Fisseux, "Fièvres intermittentes pneumoniques ou pneumonies pernicieuses" (five cases), ib, 3.

Jousset, "De l'injection de Chlorohydrate de Quinine dans la trachée comme moyen du traitement de la fièvre intermittente pernicieuse," ib., 1874, No 27. Crocq, "Fièvre intermittente compliquée d'Entérite" (man. æt. 41), 'Presse Méd. Belge,' 1874, 271. S. C. Busey, "Three cases of Renal Disease in Children, probably caused by malaria" (1. boy, æt. 15, "amyloid degeneration," recovery; 2. girl, æt. 9, "desquamative nephritis," recovery; 3. boy, æt. 4, "hyperæmia of the kidneys," recovery), 'Amer. Journ. Med. Sci.,' lxv, 123. Grasset, 'Étude clinique sur les affections chroniques des voies respiratoires d'origine paludéenne,' Paris, 1873. L. T. Bochefontaine, Recherches. Expérimentales rélatives à la contraction de la rate à l'action du sulphate de Quinine,' Paris, 1873, pp. 11. T. Dougall, "The febrifuge qualities of the Cinchona Alkaloids —Cinchonia, Quinidia, and Cinchonidia," 'Edin. Journ.,' xix, 193. H. Gripat, "Fièvre quarte guérie par le mélange du Sulfat de Quinine et de l'Eau-de-vie," 'Bull. Gén. de Thérap.,' t. 84, p. 36. R. Fiechter, "Ueber die Wirkung des Tinct. Eucalypti globuli bei Intermittens," 'Deut. Arch.,' xii, 508. Guisbert, "Assainissement des terrains Marécagaux par l'Eucalyptus globulus," 'Compt. Rend.,' lxxvii, 764. C. Burdel, "L'Eucalyptus en Sologne," 'Bull. Gén. de Thérap.,' t. 84, p. 409, and t. 85, p. 529. C. Eisenlohr, "Carbolsaure gegen Intermittens," 'Berl. Klin. Woch.,' 1873, 487. B. Curschmann, "Ueber Behandlung des Wechselfiebers mit Carbolsäure," 'Centralbl.,' 1873, 628. W. Winternitz, "Ueber den Werth der Hydrotherapie beim Wechselfieber und bei Milztumoren," 'Wien. Med. Woch.," 1873, No. 22. G. Vallin, "De l'emploi du Bromure de Potassium comme adjuvant dans le traitement des fièvres intermittentes," 'Bull. Gén. de Thérap.,' t. 85, p. 433.

### *Yellow Fever.*

O. Wucherer ("Einige Bemerkungen über das Gelbfieber im Allgemeinen und Seine Verbreitungsweise," 'Deut Arch.,' xii, 391) agrees with Pym in holding that the true home of yellow fever is to be sought for on the west coast of Africa, and not on the coast of Mexico and the Antilles. He explains the fact that it is most common on coast-lines and in large populous places by the requirement of a certain concentration for the working of the poison—a concentration impossible on table-lands subject to frequent changes of wind, and in places of high elevation. He does not allow processes of organic decomposition to have any influence in the production of the disease, and thinks that its prevalence in harbours and on ship-board is due to the fact that in both are gathered together numbers of persons unacclimatised and liable to take any disease. The immunity of negroes to yellow fever is not absolute, nor is immunity (known to be acquired under certain conditions) lost by long residence in high latitudes. Wucherer looks upon the disease as contagious from person to person, as well as infectious, and calls attention to the repeated epidemic outbreaks of it in the Brazils some time before the year 1849.

G. M. Sternberg submits ('Amer. Journ. Med. Sci.,' lxv, 398) what he conceives to be proof of the following propositions:—1. The yellow fever poison is not an emanation from the persons of those sick with the disease. 2. It is not generated by atmospheric or telluric influences. A certain elevation of temperature is, however, necessary for its multiplication, and its rapid increase is promoted by a moist atmosphere, and probably by the presence of decomposing organic matter. 3. The poison is portable in ships, goods, clothing, &c., and a minute quantity is capable of giving rise to an extensive epidemic. 4. Exposure to a temperature of 32° F. completely destroys it. 5. It may remain for an unknown length of time in a quiescent state, when not subjected to a freezing temperature or exposed to the conditions

necessary for its multiplication, and may again become active and increase indefinitely when these conditions prevail. 6. While liability to the disease, and its severity when contracted, depend to a certain extent upon age, sex, temperament, previous habits, and acclimation, they also depend to a great extent upon the degree of concentration of the poison—*i. e.* the larger the dose, the greater the probability of an attack, and the greater its severity. His observations were made during the epidemic of yellow fever in Governor's Island, New York, in 1870, and his concluding remarks on treatment are those which naturally follow the assumption that the disease is due to a specific living germ, external to the human body, and setting up in the human system a specific infectious disease.

J. Jones ('Boston Med. and Surg. Journ.,' lxxxix, 205) publishes the general results of his investigations upon the changes of temperature and conditions of pulse in yellow fever. The maximum elevation is rapidly attained upon the first, second, and third days of the disease, ranging from 102° to 110° F. in the axilla; as a general rule, from the third to the fifth day it steadily descends to the normal and even below it; in some fatal cases it rises again towards the end, rarely, however, reaching or exceeding, during the stage characterised by passive hæmorrhages, black vomit, jaundice, and suppression of urine, 104° F. After the first stage of pyrexia, the temperature may be subject to slight elevations due to malarial fever, abscess, &c. The pulse at the commencement of the attack is rapid and full; its frequency does not correspond with the temperature oscillations, and in many cases the phenomenon is witnessed of progressive decrease of pulse-beats with a persistently high temperature; on the other hand, it often increases in frequency, but diminishes in force, towards the fatal issue. A tabular statement of the variations of the pulse and temperature in 48 persons attacked with yellow fever establishes the fact that a temperature of 106° was invariably followed by death, and also that jaundice, suppression of urine, and black vomit, are often accompanied by a slow pulse and but moderate elevation of temperature.

The same writer gives ('New York Med. Rec.,' 1873, 417) a tabular view of the pathological anatomy of yellow fever and malarial fever, for which, as unsuited for a short abstract, the reader is referred to the original, as also to "The result of two post-mortem examinations, performed at the same time, side by side, in the same room, the one illustrating the pathological anatomy of Malarial Fever, and the other of Yellow Fever" ('Boston Med. and Surg. Journ.,' lxxxix, 25).

Accounts of different epidemics at Barcelona, Vera Cruz, Bermuda, and other places, may be found in the papers to which reference is made below.

F. Haenisch, "Das gelbe Fieber mit Berücksichtigung eigenen an Bord S.M.S. Arcona 1870 in West-Indien gemachter Beobachtungen," 'Deut. Arch.,' xi, 282. C. Heinemann, "Bericht über die in Vera Cruz wahrend der letzen 6 Jahre beobachteten Krankheiten," 'Virch. Arch.,' lviii, 161. J. Jones, "General Conclusions as to the Nature of Yellow Fever, drawn from original investigations," 'New York Med. Journ.,' xviii, 34. Id., "Investigations on the Changes of the Blood in Yellow Fever," ib., 449. Id., "Notes upon the Yellow Fever of 1873 in New Orleans," 'Boston Med. and Surg. Journ.,' lxxxix. 543. T .G. Wilson, "Extract from observations on the Yellow

Fever Epidemic at Bermuda in 1864" (microscopic appearances of black vomit), 'Lancet,' 1873, ii, 626. "Yellow Fever at Shreveport, Louisiana," ib. ib., 724. G. Milroy, 'Epidemiological (Yellow Fever) Memoranda from Jamaica," ib. 1874, i. 214. O. Saint-Vel, "De quelques Analogies entre le Choléra et la Fièvre jaune," 'Gaz. Hebd.,' 1873, 651.

## *Cholera.*

The development and spread of cholera were discussed at the International Sanitary Conference which held its sittings at Vienna in July, 1874 ('Wien. Med. Ztung.,' 1874, 227). The general conclusions, by no means new, were as follow:—That cholera is developed spontaneously only in India, is not endemic in Europe, and epidemics of the disease in Europe have their origin in the former country. That the affection is spread by human intercourse, by articles of ordinary use, clothes, &c., from infected places, by dead bodies, and possibly by food and living animals; never by the atmosphere alone. The question of the period of incubation gave rise to a long discussion, the majority agreeing that it was very short, barely exceeding a few days. Though no means are certainly known by which the cholera germs may be rendered less infectious, the access of fresh air and general disinfecting agents were recognised as most important.

R. Förster ('Die Verbreitung der Cholera durch die Brunnen,' Breslau, 1873, pp. 28) insists on the view that cholera is spread almost exclusively by drinking-water, into which the specific ferment has passed by means of sewers, &c. His instances are based on the occurrence of the disease in twelve small towns in Silesia and Posen. The fortress of Glogau seems to be his strongest point. Here the town is divided into two parts by the Oder; the smaller portion, on the right bank, was attacked by cholera in 1866, and 1½ per cent. of the population died. That on the other bank, though ten times larger, and possessing in the neighbourhood a barrack in which the Austrian prisoners were affected with the disease, escaped almost entirely. The former part of the town got its drinking-water from local springs, the latter received its supply from without. Other towns mentioned, though they do not seem to have had means of conducting water from beyond their limits, had springs rising deeply from the rocks, into which there was no drainage.

J. G. Schlimmer ('Nederl. Tijdschr. voor Geneesk.,' 1873, Afd. i, No. 13) declares that the epidemic in Hamadan, Persia, was not due to introduction from without, but was spontaneously developed from bad causes already existing, especially to filth, bad water supply, &c.

Scott writes ('Army Med. Rep.,' xiii, 212) in contradiction of Cornish's view ('Med. Times and Gaz.,' 1871, ii, 591), that the outbreak of cholera at Secunderabad, in a regiment of hussars, was due to poisoned water supply. He asserts that the spring in question was perfectly good, and used by other regiments without harm; and that the regiment in question drew their supply from another and unsuspected source. He confesses that the true origin of the mischief is hidden in doubt, and does not think that the possibility of infection by poisoned drinking-water can be absolutely denied.

J. Murray ('Brit. Med. Journ.,' 1873, i, 219) decidedly asserts the possibility of infection by drinking-water.

J. N. Cunningham prints (Calcutta, 1873, pp. 36) his 'Report on the Cholera Epidemic of 1872 in Northern India.' The epidemic was most severe in Oude and the north-western provinces; it began somewhat earlier than usual—towards the end of May—and attacked, in a greater and more severe degree than former epidemics, the hill-stations. In most places in which cholera broke out diarrhœa was frequent, and the occurrence of malarial fevers was not affected by the presence of the cholera poison. Careful observation of a hundred centres, including regiments, cantonments, and jails, showed that the disease was not propagated along the main lines of communication, and did not travel more rapidly than in the days when no railways existed. In no single instance could it be shown that the propagation of cholera was due to the drinking-water drawn from a particular well, nor in a single instance in India has a further outbreak of cholera been brought home to the dejecta of a patient suffering from the disease.

W. R. E. Smart read before the Epidemiological Society ('Lancet,' 1873, i, 406) a paper "On Cholera in Insular Positions," in which, after some general remarks, he sketches the geographical distribution of the various islands in which cholera has shown itself at any time. He directs attention to the fact that the homes of malarial fevers and of dysentery are also the cradles of cholera, and to the correlations of the latter with typhus, typhoid, yellow fever, smallpox, and influenza. Although it has been frequently denied, there are many positive instances of direct infection of islands by boats or ships, the former, in their commerce between islands, being exempt from quarantine, and the latter cruising, perhaps, from coasts where cholera prevails, not being placed under any restrictions, though diarrhœa may be present among the crew. He instances the case of H.M.S. Apollo in 1849, in which cholera in its spasmodic form was carried from Cork to near the coast of Brazil, a voyage of 4500 miles and 55 days at sea, and urges that the diarrhœic form, which lasts after the first type has ceased, may be carried in ships to even a longer distance. The season of the year has great effect on the intensity of the disease; for instance, in the West India Islands the dry and generally healthy season is that in which cholera epidemics have been worst, while the hot wet season was most favourable to the epidemic yellow fever of the country. The same holds true with the epidemics of Mauritius and Malta. Assuming the capability of ships and boats to convey the poison, and bearing in mind that it is carried along the ocean with tenfold rapidity as compared with its travel overland, he urges that quarantine is, above all things, the most efficacious in opposing the march of cholera.

Friedlander ('Berl. Klin. Woch.,' 1873, 451) insists on the importance of disinfection and rigorous isolation in cases of cholera, proved by his own experience since 1866. He also gives as the period of incubation, pretty constant in a series of cases observed by himself, $\frac{3}{4}$ to $3\frac{1}{2}$ days. The difference he holds to be due, not to any individual peculiarities of constitution, but to the quantity and quality of the poison taken in; the more intense the course of the affection, the shorter the period of incubation.

Accounts of the epidemic in 1873 in various places are given by the

following writers:—E. Besnier read a paper ('Union Méd.,' xvi, 417) before the Soc. Méd. des Hôpitaux on its occurrence in Paris. There had been some sporadic cases about the end of August, but the disease became epidemic about the beginning of September; on the 4th October there were 6 fatal cases, next day 29, and during the next week a rise to 38 on the 11th; on the 19th the mortality had sunk to 13, and up to the end of the epidemic, at the beginning of November, varied from 4 to 15, the whole number dying being 846, most, as usual, in the worst quarters of the town. In the better quarters the cases were sporadic; before the epidemic broke out there had been frequent cases of diarrhœa. The writer adds some notes of Leudet's on the outbreak of cholera in Rouen in 1849 and 1866. The feeling of the writer himself, and of those who took part in the discussion which followed ('Gaz. des Hôp.,' 1873, 900, &c.) his paper, was in favour of the establishment of separate wards, or, better still, separate cholera hospitals for patients suffering either from this affection or from cholerine. Lecadre ('Bull. de l'Acad. de Méd.,' 1873, 1043) and Lutaud ('Gaz. Hebd.,' 1873, 569) give accounts of the smaller outbreaks in Havre and Rouen. The former writer thinks that it was not introduced, but broke out in Havre spontaneously; and in spite of the fact that during the month of August 91 persons between the ages of 5 and 90 years died there of it, Briquet ('Bull. de l'Acad. de Méd.,' 1873, 1047) looks upon the disease as not Cholera Asiatica, but a simple cholera of the country. In both Havre and Rouen the epidemic seems to have ceased about the middle of September. F. M. Balestreri ('Annal. Univ.,' ccxxvi, 331) describes the outbreak at Genoa from August to the middle of October. During the first month 42 cases occurred, with 32 deaths; for the next month there were about 13 cases daily.

G. Lubelski writes ('Gaz. Hebd.,' 1873, 638) on the epidemic of cholera in Warsaw in 1873. It seems to have been introduced from Galicia on the woodrafts. From May to the end of September, during which months it raged, about 2000 persons in Warsaw alone, and from 12,000 to 15,000 in the whole country, died of it, the greatest fatality being among the Jews and the population of ill-drained and unhealthy places. He found sulphate of iron of more use as a disinfectant than carbolic acid.

From official papers it appears ('Wien. Med. Ztng.,' 1873, 600) that between, March and November, 1873, 4348 persons (1931 males, 1682 females, and 735 children) were attacked in Pesth, of whom 2189 (938 males, 799 females, and 452 children) died, the majority being among the lowest classes of the population.

Damaschino ("De la diarrhée dite prémonitoire du Choléra," 'Union Méd.,' xv, 648) observed the absence of a prodromal diarrhœa in 39 out of 113 cases. In 22 cases it lasted from one to six hours; in 9, twelve hours; and in the rest, 13 hours or more. In the cases in which the disease set in suddenly, without any diarrhœa, the percentage of fatal cases was 32·9.

Brochin ("Recherches sur la diarrhée prodromique du Choléra," 'Gaz. des Hôp.,' 1873, 881) found that prodromal diarrhœa occurred in the epidemic of 1849 in 85 out of 122 cases, and in that of 1853–54 in

52 out of 72. In the latter epidemic in Paris, in 4983 out of 6903 cases a diarrhœa of at least six hours was observed before the other symptoms showed themselves.

F. A. Muhlhäuser ('Berl. Klin. Woch.,' 1873, 595) gives brief reports of 21 cases of cholera occurring during the recent epidemic, in all of which the urine was found to contain albumen. Four were fatal cases of collapse, eight survived after passing through the algide stage, and nine recovered from diarrhœa without passing into the stage of collapse. He draws the following conclusions:—If a patient be seized with vomiting or diarrhœa, or both, during the existence of an epidemic of cholera, and his urine be not albuminous, he is not affected with the disease; but if, under the same circumstances, a patient has albuminous urine, he is affected, though he does recover after passing through the algide state or that of collapse. The writer thinks this test sufficient to distinguish between true Asiatic cholera and summer diarrhœa, or any affection allied to it.

A. Hermann ('Allg. Wien. Med. Ztng.,' 1873, 52, &c.) also concludes that the presence of albumen with choleraic symptoms, and in the absence of any renal affection, is pathognomonic of true cholera; while non-albuminous urine, however severe the choleraic symptoms may appear, is proof that the disease is not cholera.

Renaut and Kelsch describe ('Gaz. des Hôp.,' 1873, 926) certain histological changes in the intestine in cholera, which consist essentially in inflammation and partial destruction of the tubular glands with hyperplasia of the connective tissue and the lymphatic elements. They noticed also that the red blood-cells, in the algide stage especially, were shrivelled or broken up altogether; and by the setting free of their contained pigment they account for the dark colour of the urine in the stage of reaction.

Hayem, however ('Un. Méd.,' xvi, 966), agreeing with these writers in finding increase in the colourless cells, is unable to discover the red ones, only broken remains of them; this result he believes to be due to the fact that during the period of stasis the red and white blood-corpuscles are passing through the vessel-walls, and the former, caught by the blood stream when the circulation is restored, are broken by its force. He is able to produce the same effect by ligaturing a guinea-pig's leg.

T. R. Lewis and D. Cunningham ('Eighth Report of Sanitary Commission to Government of India,' App. C, Calcutta, 1872) give the results of their microscopical and physiological researches into the nature of the agent or agents producing cholera. They affirm that the blood in cholera "is, as an almost invariable rule, free from bacteria, either actual or potential," as also from fungoid elements. They give a table of 128 specimens of blood, which shows that neither of these elements occurred in it when fresh, and only in a few cases at a later period. Injections of choleraic evacuations, either fresh or several days old, into the veins of dogs failed to produce anything like cholera. The well-marked and pretty constant intestinal lesions produced appeared to be the consequence of local disturbance of the circulation, and were obtained whether the injections used were choleraic or not. Struck by the fact

that in the dogs thus experimented upon there was an almost total absence of increased secretion of fluid from the mucous membrane, they divided the splanchnic and then the mesenteric nerves in order to see the effect on the secretion. Division of the former had none whatever. They found that "this relation which the secretion of the small intestine bears to its nervous supply is strictly analogous to that which has long been known to hold good for the secretion of the submaxillary gland and its nervous supply:" partial division of the intestinal nerves produces secretion, while total section lessens it. They believe there are filaments which promote and which prevent intestinal secretion.

A. Högyes ('Centralbl.,' 1873, 787) has made observations on the effect of fresh cholera-dejections on dogs, rabbits, and guinea-pigs. The matters were either given by mouth, injected into the jugular veins, or administered in such a way that the poison was taken up by the respiratory passages. He is led to the following conclusions:—Fresh cholera-dejections produce bad effects on animals, and in different ways on different animals, shown mainly in inflammatory changes in the stomach and intestinal tract. These changes are produced more readily in animals in whom a previous catarrh of these organs has been artificially set up. Inspiration of the poisonous particles has the same effect, though apparently not in cases in which the dejections have been disinfected with carbolic acid; in the latter case the power of propagation seems to have been removed from the fungoid particles inhaled. Cholera-stools deprived of their formed elements may, by their chemical constituents alone, set up the same pathological changes. The assistant at these experiments, who had the opening of the vessels containing the cholera-stools, seems to have unconsciously added another to the list of observations, as he became subject to a severe intestinal catarrh, which he communicated to his young daughter; five days later two cases of cholera appeared in the house in which he lived, one of which proved fatal. During the microscopical portion of the observations Högyes himself complained of loss of appetite, foul tongue, and a feeling of pressure at the epigastrium, symptoms which disappeared on the termination of his researches.

Wienkowsky ('Wien. Med. Woch.,' 1873, No. 45, p. 1027) finds that permanganate of potash and solution of quinine destroy effectually the bacteria found in the stools of cholera.

G. Wolfhügel ('Arch. f. Exp. Path. u. Pharm.,' i, 414) thinks that no good results can be obtained from these experiments on animals till it can be satisfactorily shown that they are in the same conditions and in the same way liable to cholera-poison as human subjects. His own observations, made during the epidemic of cholera in Munich in 1873, are decidedly opposed to any simultaneous affection of animals living in or about the houses of the sick.

The injection of various fluids has been tried with success in the treatment of cholera. Stadthagen ('Berl. Klin. Woch.,' 1873, 453) injected 120 grm. of defibrinized blood into the median basilic vein with good result; in a second case it failed. G. Kalischer (Inaug. Diss., Berlin, 1873, pp. 36) performed the same operation: success followed in one case and death in a second; he reviews other cases of the same kind.

Hodder ('Gaz. Hebd.,' 1873, 262) transfused 200—450 grm. of milk at a temperature of 100° F. in seven cases, all of which recovered. Dujardin-Beaumetz injected salt solutions ('Union Méd.,' xvi, 619, and 'Gaz. des Hôp.,' 1873, 949) into the veins of three patients in the algide stage; all three died. Groussin ('Gaz. des Hôp.,' 1873, 889), Darin (ib., 862), and E. Massart ('Un. Méd.,' xvi, 594), find benefit in hypodermic injections of morphia, while J. Bonnemaison (ib., 562) would rely as well upon injections of quinine, strychnine, &c. Other papers suggesting the same or different hypodermic injections are printed below.

F. X. v. Gietl, 'Gedrängte Uebersicht Meiner Beobachtungen über die Cholera vom Jahre 1831 bis 1873,' Munich. Strahler, "Die Cholera im Regierungsbezirk Bromberg," 'Berl. Klin. Woch.,' 1873, 471. "The Cholera in Europe," 'Lond. Med. Rec.,' 1874, 7. J. C. Peters, "Facts and Theories about the recent outbreak of Asiatic Cholera," 'New York Med. Journ.,' xviii, 472. Brouardel, "Comparaison entre les épidemies du Choléra de 1853-54, 1865-66, et 1873," 'Union Méd.,' xvi, 515. G. Morache, "À propos du Choléra," 'Gaz. Hebd.,' 1873, 633. H. Friedberg, 'Zur Verbreitung der Cholera," 'Zeitschr. f. Epidem.,' 1874, i, 94. C. Pellarin, "Le Choléra, comment il se propage, &c.,' 'Paris,' 1873, pp. 32. J. Murray, 'On the channels through which Cholera is communicable,' London, 1875, pp. 16. Id., "Review of Dr. Cunningham's report of the Epidemic Cholera of 1872," 'British Med. Journ.,' 1874, i, 71. J. M. Cunningham, "The propagation of Cholera in India" (in answer to Murray), ib. ib., 137. Id., 'Recent Experience of Cholera in India," 'Lancet,' 1874, i, 477. M. v. Pettenkofer, "On the recent outbreak of Cholera in Munich," 'Med. Times and Gaz.,' 1874, i, 582. Id., "Der neueste Bericht des Sanitary Commissioner Dr. J. M. Cunningham uber die Cholera 1872 in Indien," 'Zeitschs. f. Biol.,' ix, 411. Id., "Ueber den gegenwärtigen Stand der Cholera-Frage und über die nächsten Aufgaben zur weiteren Ergründung ihre Ursachen,' ib., viii, 492. W. Schiefferdecker, 'Die Cholera-epidemie vom Jahre 1871 in Konigsberg,' Konigsberg, 1873, pp. 75. H. Reinhard, 'Die Verbreitung der Cholera im Konigreiche Sachsen nach den Erfahrungen der Jahre 1832 bis 1872,' Dresden, 1873, pp. 31. F. Erman, "Ueber einige im Jahre 1873 an den Cholerakranken des Allgemeinen Krankenhauses zu Hamburg gemachte Beobachtungen," 'Virch. Arch.,' lx, 46. E. M. Estrazulas, "Epidemic Cholera in South America," 'Amer. Journ. Med. Sci.,' lxvi, 74. Tholozan, "Nouvelles preuves de l'orgine Européene du Choléra épidemique," 'Gaz. Hebd.,' 1873, 459, Id., "Considérations générales sur les points d'origine des grandes épidémies cholériques," 'Bull. de l'Acad. de Méd.,' 1873, 796. Id., "Le Choléra dans l'Inde," 'Union Méd.,' xvi, 65. J. Macpherson, "Early notice of Cholera in India," 'Med. Times and Gaz.,' 1874, ii, 522. V. Audhoui, "Les causes occasionelles du Choléra Indien," 'Gaz. Hebd.,' 1873, 965. F. Kuchenmeister, "Offene Briefe uber Cholera," 'Wien. Med. Ztg.,' 1873, 35. T. Clemens, "Reflexionen über Cholera-Aetiologie," 'Deut. Klin.,' 1873, 413. M. v. Pettenkofer, "Ozon und Cholera," 'Berl. Klin. Woch.,' 1873, 397. A. Martin, "Zur Enstehungs- und Verbreitungstweise der Epidemischen Cholera," 'Wien. Med. Woch.,' 1873, No. 38. Crocq, "De la Contagion du Choléra; valeur, au point de vue de l'étiologie de cette Maladie, des influences météorologiques, electriques et cosmiques," 'Presse Méd. Belge,' 1873, No. 6. L. Colin, "Le Choléra, ses foyers, influence de l'air et de l'eau sur sa propagation," 'Union Méd.,' xvi, 473. Id., "Influence de l'Eau employée en boisson sur la propagation du Choléra," 'Compt. Rend.,' lxxvii, 1089. H. H. Phillips, "The influence of Impure Water in the Diffusion of Cholera," 'Brit. Med. Journ.,' 1873, ii, 220. "Discussion sur la Choléra," 'Bull. de l'Acad. de Méd.,' 1873, 1133. Cazalas, "Lettre rélative au Choléra," ib., 1356. E. Lichtenstein, "Zur dermaligen Cholera-Epidemie," 'Deut. Klin.,' 1873, 337. C. Pellarin, "Les déjections cholériques, agent de transmission du Choléra," 'Compt. Rend.,' lxxvii, 635. Id., "L'importation et ses consequences au point de vue de la pathologie et de la thérapeutique du Choléra epidémique," 'Gaz. Hebd.,' 1873, 604. A. Pellarin, "De l'importation et de la contagion du Choléra," 'Union Méd.,' xvi, 536. R. Rodolfi, "Sul cholera indiano," 'Gaz. Med. Lomb.,' 1873, 289. E. Fournié, "Lettre sur la Cholera," 'Gaz. des Hôp.,' 1873, 876, B, Ball, 'Leçons sur

le Choléra," ib., 954. Laurans, "Nouveaux cas de Choléra d'Emblée," ib., 961. Gee, "Four cases of Cholera" (three fatal, two with autopsies), 'Lancet,' 1873, ii, 452. Vanden Bergh, "Case of Cholera, with Autopsy," 'Presse Méd. Belge,' 1874, 116. M. Goldbaum, "Der Transudations-process in der Cholera," 'Berl. Klin. Woch.,' 1873, 548. Oser, "Ueber Quarantine in Cholera," 'Wien. Med. Jahrb.,' 1873, 476. Bouchardat, "Résumé d'une Leçon sur les règles d'hygiène à suivre en temps d'épidémie de Choléra," 'Gaz. des Hôp.,' 1873, 859. C. Pellarin, "Epidémiologie cholérique, tribut à l'étude des moyens de préservation," ib., 939. A. Bloch, "Choléra traité pendant la période algide par l'enveloppement dans un drap mouillé et dans une couverture de laine,' ib., 931. C. R. G. Parker, "Sulphurous Acid as a remedy for Cholera," 'Lancet,' 1873, ii, 839. H. Blanc, "On the internal use of Chloralum in Cholera," ib. ib., 226. Id., "Choléra et Chloralum," 'Gaz. Hebd.,' 1873, 751 (and see also 'Union Méd.,' xvi, 533). A. Paulie (on same subject), ib., 717. Blachez, "Des injections veineuses dans le Choléra," ib., 697. Declat, "Sur un nouveau traitement du Choléra et probablement de la fièvre jaune par l'Acide phénique et le phénate d'Ammoniaque, au moyen des injections sous-cutanées," 'Compt. Rend.,' lxxvii, 709. A. Ferrand, "Indications thérapeutiques du Choléra," 'Union Méd.,' xvi, 462. Robbe, "Sur la nature et le traitement du Choléra," ib. ib., 480. Bonnafont, "Prophylaxie du Choléra," ib. ib., 489. H. Blanc, 'Les moyens de se preserver du Choléra, étude fondée sur une connaissance des causes et de mode de propagation de cette maladie,' Paris, 1873, pp. 46. H. McCormac, "Prophylaxis of Asiatic Cholera," 'Brit. Med. Journ.,' 1873, ii, 222. C. Bruckner, "Behandlungsweise der Cholera Asiatica," 'Deut. Klin.,' 1873, 326. Hoddick, "Ueber Cholera-Behandlung, insbesondere Verhütung des Choleratyphoids betreffend," 'Berl. Klin. Woch.,' 1873, 435. F. Erman, "Beobachtungen über Temperaturverhältnisse in der Cholera," ib., 397. P. Zecchini, "Cura del Cholera nello stadio algido," 'Gaz. Med. Lomb.,' 1873, 313.

## *Enteric (Typhoid) Fever.*[1]

Alix ("Note sur les typhiques observés à Longwy," 'Gaz. des Hôp.,' 1873, 505) is bold enough to affirm, judging from his observations made among the French troops at Longwy during the late Franco-German war, that typhoid and typhus are identical, and only varying grades of one and the same disease.

R. Rath ('Beitrag zu Aetiologie der Berliner Typhus-Epidemie im Jahre, 1872,' Berlin, 1873, pp. 31), in an account of the epidemic of typhoid at Berlin in 1872, which was fatal in 1214 cases, the population numbering about 800,000 persons, and the whole mortality being 28,191, shows that when the soil-water stood at its highest the mortality from typhoid was least, the disease being most fatal when the former was at its lowest level. This agrees with what had been observed before. At the same time he does not think that the increase in the epidemic, especially the increased mortality in the autumn, is to be referred entirely to the emanations from the low-standing soil-water; it is more probable that an infected water-supply had a large share in its extension.

F. Küchenmeister ('Zeitsch. f. Epidem.,' 1874, i, 1) describes a small epidemic of typhoid in 1872-3 in Rheinhardtsdorf, a town on the left bank of the Elbe, in Saxon Switzerland. It was confined to houses whose water supply passed through the sewage of a house in which the first case, probably introduced from without, appeared.

[1] The literature on this subject for the last two years is so extensive, as the subjoined bibliography shows, that I have been compelled to omit abstracts of papers by English writers, and place them all without exception among the references, as they are more easily referred to than foreign papers.—A. B. S.

Fleck writes (ib., 25) in reference to the same sort of occurrence in a locality he had occasion to investigate, where the excrement was collected behind the house, in excavations in the sandstone, the porous nature of which is well known. From these it was used as manure for the fields, which lay higher than the town. Analysis of the water in the drinking troughs, from which, probably, the infection first came, showed it contained a larger amount of ammonia and organic matter than did the original sources from which it was conveyed. It was proved also to contain certain elements of decomposition from which the original water was free. There must, therefore, have been a filtration of sewage water into the conveying channels (wooden tubes).

Wolfsteiner ('München ein Typhusheerd,' Munich, 1873, pp. 40) insists that the prevalence of typhoid in Munich is due to the presence of excrementitious matters in the soil, and consequent poisoning of the drinking-water.

A. Hägler ("Beitrag zur Aetiologie des Typhus und zur Trinkwasserlehre," 'Deut. Arch.,' xi, 237) writes on the small epidemic of typhoid in the summer of 1872 in the village of Lausen (Canton Bâle), which contains about 90 houses and 780 inhabitants, and, in spite of typhoid epidemics in its immediate neighbourhood, had managed to escape since the year 1814. The soil consists of limestone boulders and loam; the soil-water stood at varying heights, according to the rainfall. The drinking-water was brought from a spring above the village into four cisterns in such a way that any contamination between the two was, to all intents, impossible. Only six houses, five at the four corners of the village, and a paper mill, pumped their water from springs of their own. On the first of June a case of typhoid, the origin of which is doubtful, occurred in a house above the town, followed by three cases in the same house in the course of the succeeding weeks. On the 7th August ten persons were attacked suddenly in the village itself, and during the next nine days 47, *i.e.* 7 per cent. of the whole population. The disease attacked rich and poor alike, pretty regularly over the whole village, but never reached those who drew their water supply from their own wells, till, towards the end of the epidemic, when more than a hundred persons had suffered, two workmen were seized who lived in the houses which possessed their own pumps, but worked in the village, and drank from the common spring. So far it seems most probable that this spring was poisoned originally by the first typhoid patient, and the paper contains facts which tend very much to support this theory. Of the whole number (130) attacked, eight died. Children who in the hot weather drank large quantities of water suffered most severely. The commencement of the affection was marked almost constantly by pain in the neck; diarrhœa was often absent; roseola was present in the large majority of cases, and enlargement of the spleen almost always. The treatment consisted mainly in calomel given in purgative doses, cold baths of 16—22° R. for a period of 10 to 15 minutes, and in cases of great pyrexia quinine and digitalis. The writer lays some stress on the point that, though the drinking-water for many years had been liable to contamination from various sewage influences, no case of typhoid had occurred till the

water had received the true specific poison of that fever from an affected individual.

The account given by Weisflog ('Deut. Arch.,' xii, 320) of a typhoid epidemic in the village of Elterlein (on the Saxon side of the Erzgebirge) is extremely similar. The lower portion of the place, to which the epidemic was limited, seems to have had the same conditions as to soil, &c., as the upper portion, except in the one matter of water-supply, and the outbreak ceased on a proper repair of the channels by which that part of the village had evidently been contaminated.

H. Werner had ('Allg. Wien. Med. Ztng.,' 1873, 156) under his care in hospital during 1871 90 cases of fever, of which 68 were typhoid and 22 typhus. Of this number 22 died, *i.e.* 24·4 per cent., according to the writer, a very good proportion. The treatment consisted in depressing the bodily heat by means of linen cloths dipped in fresh spring water, the administration of ice, careful regulation of the intestinal functions, and the employment of ipecacuanha or narcotics in cases of severe bronchial catarrh. The use of quinine was not observed to have any markedly good results.

E. Klein describes ('Centralbl.,' 1874, 692) the minute changes he finds in and about the Peyer's patches in cases of typhoid fever, consisting mainly in a rapid absorption of certain organisms which are carried off by the lymphatic system and the veins of the intestine. In the earliest case he examined, in which death occurred on the seventh day after the premonitory headache, Lieberkühn's crypts contained certain greenish-brown corpuscles, varying from a quarter to three times the size of a human red blood-corpuscle. Some of them presented transitional forms, due to incomplete division. Corpuscles of the same kind were seen in the mucous membrane, the lymphatics, and the small veins, broken up in the last, and forming groups of micrococci. The author leaves for further researches the decision of the question whether the alterations found are due to the presence of the organisms described or to secondary changes in the blood-vascular system.

Birch-Hirschfeld ("Untersuchungen zur Pathologie des Typhus abdominalis," 'Zeitsch. f. Epidem.,' 1874, i, 31) fed rabbits on the stools of typhoid patients and portions of the scabs of typhoid ulcers taken from the body. As a consequence, the animals presented pyrexia and swelling of the follicles of the ileo-cæcal valves and the vermiform appendix. In one case, in which the typhoid scab had been given, there was found, five weeks later, an ulcer about the size of a lentil, with a reticulated border. The spleen was more or less swollen. Other experiments made with putrid infusions set up simple diarrhœa, with febrile gastro-enteritis, and only slight swelling of the glands. His experiments were made especially on rabbits, because these animals are subject sometimes to an idiopathic typhoid disease, which occurs epidemically, with swelling of the follicles. Though the latter occurrence is a secondary localisation of the general infection, the writer looks upon the follicles also as centres from which a specific irritating poison may be introduced again into the general system.

T. Jürgensen ('Volkmann's Vorträge,' ser. iii, No. 61), writing on the slighter forms of enteric fever, agrees with Griesinger in holding

that the short duration of the affection, not the insignificance of its symptoms, is its most marked characteristic, and gives some observations of his own in support of this view. The first peculiarity of these slighter forms is their sudden onset, with a rapid and regular rise in temperature, and enlargement of the spleen in every case. The occurrence of roseola seems to depend on the severity of the affection, measured by its duration. Miliaria is common, while diarrhœa is seldom, and hæmorrhage or perforation never, present. The urine is generally albuminous. Convalescence is relatively long. Error in diet may cause relapses, and Jürgensen believes that the so-called typhus ambulatorius is only this form prolonged by such repeated errors. The treatment following the symptoms is simple.

Vallin ('Arch. Gén.,' xxii, 513), on the other hand, holds that apyretic cases of typhoid occur which are not to be confounded with typhus levissimus. These may be very severe, and even fatal. He gives two cases in which the temperature never exceeded 37·6° C. One ended in death, and the autopsy showed marked affection of the intestinal glands and degeneration of various muscles.

The French have written much during the two years past as to the treatment of typhoid fever with cold water. Numerous references to the discussions held in the medical societies at Lyons may be found below.

W. McEwen has translated and condensed ('Glasg. Med. Journ.,' N.S., vi, 370) the papers by F. Glénard on the subject contained in the 'Lyon Médicale,' 1873-4.

Fourrier ('Bull. Gén. de Thérap.,' t. 85, p. 241) gives the results of 15 cases, most of them observed in German soldiers during the war of 1870, in which typhoid fever was treated with alcohol. He concludes that the latter has a most favourable action upon the fever, and shortens its duration, and that it was especially useful in cases of delirium, which disappeared rapidly under its influence. He gives also six cases of "infantile cholera" treated successfully with the same agent.

Port, "Ueber das Vorkommen des Abdominaltyphus in der bayerischen Armee," 'Zeitschs. f. Biol.,' viii, 457. R. Cobelli, "Einfluss der Einführung des Wassers der Spino-Quelle auf die Sterblichkeit an Abdominaltyphus, gastrischem Fieber und auf die Gesammtsterblichkeit in der Stadt Roveredo," ib, ix, 550. A. Biermer, "Ueber Entstehung und Verbreitung des Abdominal-Typhus," 'Volkmann's Vorträge,' ser. ii, No. 53. P. Guterbock, "Ueber spontane Luxationen und einige andere Gelenkkrankheiten bei Ileotyphus," 'Arch. f. Klin. Chir.,' xvi, 58. M. Kröcher, 'Typhuscomplicationen,' Berlin, 1873, pp. 31. A. Oeffner, 'Ueber die Anwendung des Chinins im Typhus,' Munich, 1874, pp. 23 (with temperature curves). C. Gerhardt, "Perichondritis nach Typhus; Heilung," 'Deut. Arch.,' xi, 578. A. Burkart, "Ueber Miliartuberculose und über das Verhältniss der Tuberculose zum Abdominaltyphus," ib., xii, 277. H. Eichhorst, "Ein Merkwürdiger Fund im Blute eines Typhus-Kranken" (finely granular colourless cells containing red blood-cells), ib., xiv, 223. Cazalis and Renaut, "Observations pour servir à l'histoire des affections typhoïdes," 'Arch. de Physiol.,' v, 227. E. Charron, "Fièvre typhoïde adynamique, Mort, Autopsie: dilatation excessive de la vesicule biliaire avec obliteration du canal cystique," 'Presse Méd. Belge,' 1873, No. 25. Crocq, "Autopsie d'une femme de 29 ans, décédée à la suite de fièvre typhoïde apres cinquante jours de maladie" (perforation of large intestine at junction of cæcum with ascending colon), ib., 1874, 240. A. Netter, 'Lettre sur l'élément buccal dans la fièvre typhoïde et sur l'heureuse influence de gargarismes

acidulés fréquemment répétés," 'Gaz. des Hôp.,' 1873, 605. Id., "Du mécanisme de formation des parotites dans la fièvre typhoide," ib., 548. Martineau, "Emploi topique du chloral contre les eschares du sacrum dans la fièvre typhoïde," ib., 354. "De quelques causes des irrégularités de la température dans la fièvre typhoide," ib., 1874, 217. Carre, "Traitement de la fièvre typhoide par la methode de Brand; deux cas de mort subite," ib. ib., 475. F. Glénard, "Du traitement spécifique de la fièvre typhoïde par le method de Brand," 'Lyon Méd.,' xiv, 73. Id., "Du traitement de la fièvre typhoïde par les bains froids à Lyon (Juillet, 1873—Janvier, 1874)," ib., xv, 349 (and see discussion on, ib., 142). Sontier, "Sur le traitement de la fièvre typhoide par les bains froids," ib. ib., 232 (and see further discussion, ib., 296, 302, 359, 363). E. Faivre, "Du traitement de la fièvre typhoïde pas les bains froids," ib. ib., 7. Sézary, "Fièvre typhoide grave chez un enfant (traitement par la methode de Brand, 40 bains; guérison rapide)," ib. ib., 501. Lubanski, "Accès pernicieux dans le cour d'une fièvre typhoide intervenant comme epiphénomène fatal et complication ultime des fièvres d'accès, intermittentes et remittentes," ib., xiv, 92. Bourneville, "Notes et observations cliniques et thermométriques sur la fièvre typhoide" (reviewed in 'Lyon Méd.,' xv, 118.) S. Temoin, "Sur le traitement de la fièvre typhoide," 'Bull. Gén. de Thérap.,' t. 84, p. 215. L. Sorbet, "Fièvre typhoïde grave, digitale et sulfate de quinine," ib. ib., 26. R. Bidard, "Fièvre typhoïde ataxique et adynamique, état des plus graves, mort paraissant imminente, tartre stibié à haute dose et en lavage; guérison," ib., t. 85, p. 312. Caspari, "Ueber die Behandlung des Typhus mit Warme-entziehung," 'Deut. Klin.,' 1873, 145. A. Behrens, "Kaltwasserbehandlung des Abdominaltyphus in der Kieler Poliklinik," ib., 20. Lender, "Typhus abdominalis in 2. Stadium, wesentlich durch Sauerstoff und Electrischen Sauerstoff behandelt," ib., 229. Zurhelle, "Secundärerkrankung beider Nervi Vagi im Verlaufe eines Typhoids," 'Berl. Klin. Woch.,' 1873, 339. Mendel, "Typhus und Geisteskrankheiten," ib., 456. W. Zuelzer, "Bescreibung eines Bettgestells fur typhose Kranke," ib., 426. E. H. Greenhow, "Ulceration of the Large Intestines in Typhoid Fever" (woman, æt. 25), 'Path. Soc. Trans.,' xxiv, 110. T. B. Peacock, "Perforation of the Bowel and fatal Peritonitis, probably in Typhoid Fever" (youth, æt. 17, only one ulcer), ib., xxv, 116. Buchanan, "Sewage Irrigation as a cause of Fever," 'Lancet,' 1873, i, 98. "The outbreak of Typhoid Fever in Marylebone," ib., ii, 267, 315. T. Britton, "The outbreak of Enteric Fever at Brighouse," ib. ib., 353. "Report on outbreak of Typhoid Fever at Wolverhampton," ib. ib., 524. C. S. Elliston, "Enteric Fever at Whitton," ib., 1874, i, 104. "Epidemic Typhoid resulting from an intermittent Water Supply," ib., 1873, ii, 304. T. J. Maclagan, "Hæmorrhage from the Bowels in Enteric Fever: its varieties and significance," ib. ib., i, 197. P. W. Latham, "Convalescence in Typhoid Fever," ib. ib., ii, 26, 134. F. Brittan (on same), ib., 78. T. F. Raven, "On a case of Enteric Fever followed by Aphasia" (boy, æt. 10, recovery), ib., 1873, i, 625. Brittan, "Case of Typhoid Perforation, absence of all the usual characteristics of Enteric Fever" (boy, æt. 18), ib. ib., i, 910. J. W. Curran, "Aphasia the sequence of Typhoid Fever" (girl, aphasic for twelve weeks, recovery), ib. ib., ii, 111. J. P. H. Boileau, "Obscure Alliances of Typhoid" (boy, perforation on 42nd day, peritonitis, death, autopsy), ib. ib., ii, 258. W. R. Wall, "Enteric Fever latens" (three cases, with autopsies and remarks), ib. ib., ii, 331. C. F. Maunder, "A grave Complication of Typhoid Fever" (hernia, two cases, in an old and a young man), ib. ib., ii, 449. H. Thompson, "Enteric Fever, Albuminuria, Jaundice, Recovery" (man, æt. 33), ib., 1874, ii, 622. T. B. Peacock, "Clinical Lecture on Fever" (three cases of typhus, two of typhoid)," ib. ib., i, 435. J. W. Ogle, "Fatal Epidemic (Typhoid) Disease among Fish, whose blood during life contained Bacteria," ib., 1873, ii, 657. C. Maclean, "Remarks on the Pathology and Treatment of Continued Fever," 'Brit. Med. Journ.,' 1873, i, 644. "Typhoid Fever in Cambridge," ib. ib., ii, 696. E. Hart, "The outbreak of Typhoid Fever from the distribution of infected Milk," ib. ib., ii, 206. W. H. Corfield, "The Source of Infection," ib. ib., ii, 207. "The Dairy Reform Company and the epidemic of Typhoid Fever in London," ib. ib., 296, 358. G. Charter, "Abcess of Liver after Typhoid Fever," ib. ib., 569. Murchison, "Typhoid Fever; death from perforation of the bowel at the end of seven weeks" (woman, æt. 44, autopsy), ib., 1874, i, 546. T. L. Walford, "On Perchloride of Mercury in the Diarrhœa of Typhoid Fever," ib. ib., 545. M. K. Robinson, "The Causes of the Contagion of Typhoid Fever," ib. ib., i, 451. C. J. Egan,

"The Causation of Typhoid Fever," 'Med. Times and Gaz.,' 1873, i, 613. Ballard, "Report upon an outbreak of Enteric Fever at the village of Nunney, Somersetshire," ib. ib., i, 18, (and 'Lancet,' 1873, i, 107). Id., "On Enteric Fever at Anerley," ib. ib., i, 550, (and 'Lancet,'ib., i, 492). Russell, "Report on Enteric Fever at Parkhead," ib. ib., i, 283. G. H. Evans, "Four cases of Typhoid Fever apparently due to Milk," ib. ib., ii, 253. C. G. Logie, "The Generation of Typhoid," ib. ib., ii, 593. W. Strange, "On the Etiology of Typhoid Fever," ib., 1874, i, 611. F. E. Hogg, "Enteric Fever" (lad, æt. 20, recovery), ib. ib., ii, 117. C. Handfield Jones, "Cases of Typhoid Fever," ib. ib., i, 315. W. F. Morton, "Mount Desert and Typhoid Fever during the summer of 1873," 'Bost. Med. and Surg. Journ.,' lxxxix, 421. Russell, "Report on an outbreak of Enteric Fever connected with Milk supply," 'Glasgow Med. Journ.,' vi, 474. H. Kennedy, "Remarks on the Etiology of Enteric Fever in connection with its relation to the Strumous Diathesis," 'Dub. Journ.,' lv, 256. R. J. Scott, "Case of Enteric Fever with unusual complications" (invagination of intestine during convalescence, with recovery after passage of six inches of separated gut), 'Army Med. Rep.,' xiii, 306.

## *Typhus.*

O. Obermeier ("Die ersten Fälle und der Charakter der Berliner Flecktyphus Epidemie von 1873," 'Berl. Klin. Woch.,' 1873, 349) observed the first cases of this affection which occurred in Berlin in 1873. He records that a patient, convalescent from relapsing fever, and attacked a fortnight later by typhus, was admitted into the general ward of the hospital. Within the next fourteen days eleven patients and three attendants took the disease. Three of the persons attacked died, and six of the whole number were recovering from relapsing fever. Though exposed to the same contagion at the same time, some were attacked earlier than others; and he concludes that long continuance in the contagious atmosphere confers no immunity, and that the disposition to take contagion varies in individuals. This affection seems to have broken out almost simultaneously in the most different parts of the town, and as far as could be discovered the sufferers were persons who had been settled for years in Berlin. Whether it was imported or not is doubtful, and he leaves it an open question whether its appearance in several dirty quarters of the town was a proof of its spontaneous or its epidemic origin. The disease appeared in January, was at its highest in March and April, and declined in the summer.

The same author ('Centralbl.,' 1873, 561) gives the results of his experiments in reference to the contagion of typhus and relapsing fever. Blood from affected patients was injected, either subcutaneously or into the jugular veins of dogs, rabbits and guinea-pigs, with negative result. No infection followed the introduction of the blood into cracks, whether purposely or accidentally made, in the skin of healthy men. He refers to the fact that the animals experimented upon never take either fever, though frequently in the contagious atmosphere and in contact with affected persons. (Cf. with this Wolfhügel's remark, p. 71 of this Report.)

V. Michaud ('Gaz. Hebd.,' 1873, 38) and C. Visy (ib., 56) write on the occurrence of typhus among the civil population of Metz, due to the want and overcrowding after the siege.

A long discussion on the origin of typhus fever took place in the Paris Academy of Medicine ('Bull. de l'Acad. de Méd.,' 1873, 538), to

which some of the papers found below refer, but no further light is thrown by it on the general question.

T. W. Grimshaw ('Dubl. Jour.,' lv, 579) publishes a paper on the influence of digitalis on the weak heart of typhus fever, giving a series of cases in which he employed the drug. He concludes that when given in moderate doses it neither shortens the duration nor influences the temperature of the disease, but it prevents or diminishes delirium, and increases the frequency and fulness of the pulse. It should be discontinued if the pulse rate and temperature undergo a sudden fall, and also if, after using it for 24 hours, the pulse does not improve. When digitalis is used alcoholic stimulants are required in less quantity. He gives a dose, varying from an ounce to an ounce and a half of the infusion, every second or third hour.

T. B. Ullersperger, "Bemerkungen über Aetiologie des Typhus," 'Deut. Klin.,' 1873, 196. Lender, "Ein Fall von Flecktyphus, wesentlich durch Electrischen Sauerstoff behandelt," ib., 212. Bouchardat, "Note relative à la communication de M. Chauffard sur la question du typhus," 'Bull. de l'Acad. de Méd.,' 1873, 5. J. Périer, "Lettre relative à l'étiologie du typhus," ib. ib., 606. Guillemin, "Les origines et le propagation du typhus," 'Gaz. Hebd.,' 1873, 813. Bernheim, "Note sur un cas de typhus exanthématique," ib., 36. J. Martin, "On the Generation of Typhus by Overcrowding," 'Dub. Journ.,' lvi, 36. H. Ashby, "A case of Typhus Fever rapidly fatal" (man, æt. 34), 'Lancet,' 1874, ii, 156. T. B. Peacock, "Clinical Lecture on Fever" (three cases of typhus, two of typhoid), ib., i, 435. W. B. Lewis, "Typhus at the Sea-coast" (outbreak at Burry Port), 'Med. Times and Gaz.,' 1874, i, 529.

*Relapsing Fever.*

E. Ponfick ("Anatomische Studien über den Typhus recurrens," 'Virch. Arch.,' lx, 153) publishes a review of the pathological changes found in relapsing fever, based on about a hundred post-mortem examinations. All the cases, with one exception, occurred in men of debilitated and drunken habits, so that allowance must be made for results due rather to alcoholism than to relapsing fever. But these left aside, there were marked changes in the liver, kidneys, heart, and muscles. The fatty degeneration found in the heart was so far advanced as to resemble that due to poisoning from phosphorus. In addition to traces of interstitial inflammation in the liver and kidneys, the latter showed points of hæmorrhage in portions of the convoluted tubules and the loops of Henle. The writer holds that though none of these alterations are necessarily characteristic of the disease, the changes found in the spleen, the bone-marrow, and the blood, are almost pathognomonic. The spleen was greatly enlarged, and its capsule generally so thin that death occurred sometimes through its rupture, followed by hæmorrhage and peritonitis; the more minute changes found in it seem to have consisted in thrombosis of some of its veins and fatty degeneration of the lymphoid elements of its follicles. The bone-marrow had undergone fatty and purulent changes. Death occurred in 20 per cent. of the cases from the affection of the spleen, followed directly in 12 per cent. by peritonitis, in 8 per cent. from fatty degeneration of the heart, in 60 per cent. from catarrhal and croupous pneumonia, and in 12 per cent. from œdema of the glottis. Parotitis,

catarrh of, and in some cases hæmorrhage from, the stomach and small intestines, and membranous deposits in the colon, were noticed as complications. The writer does not lay much stress on the catarrhal jaundice, which occurred in 24 per cent. of the whole number of cases.

O. Obermeier ('Centralbl.,' 1873, 145) draws attention to the occurrence in the blood of patients suffering from relapsing fever of certain peculiar vibrio-like bodies ("Spirillæ"). He is supported by K. Bliesener ('Ueber Febris Recurrens,' Berlin, 1873, pp. 31), by F. Engel ('Ueber die Obermeyer'schen Recurrensspirillen," 'Berl. Klin. Woch., 1873, 409), and by Weigert ("Erfahrungen in Betreff der Obermeyer'schen Recurrensfäden," ib., 589). These observers generally agree in the fact that these bodies are present in the apyretic, but not in the pyretic, period of the affection.

Ponfick ('Centralbl.,' 1874, 385) has noticed, in addition to the above, certain abnormal cells in the blood of these patients, which seem to be akin to those of the spleen-pulp, and according to his view are diagnostic and pathognomonic of relapsing fever. Whether these cells really originate in the spleen itself he leaves undecided.

H. Budberg, 'Ueber Febris recurrens: Eine Skizze der Berliner Epidemie von 1872 und 1873, Soweit dieselbe in der Med. Klinik der Charité zur Beobachtung gekommen ist,' Berlin, 1873, pp. 32. F. Semon, 'Zur Recurrens-Epidemie in Berlin 1871–72,' Berlin, 1873, pp. 54. D. Dedreux, 'Ueber Febris recurrens,' Berlin, 1873, pp. 29. L. v. Meurers, 'Die hämorrhagische Diathese und das Vorkommen bei Recurrens,' Berlin, 1873, pp. 30. J. v. Steinau-Steinruck, 'Acht Falle von Febris Recurrens,' Berlin, 1873, pp. 43. O. Obermeier, "Weitere Mittheilungen uber Febris recurrens," 'Berl. Klin. Woch.,' 1873, 391. M. Litten, 'Die Recurrens-Epidemie in Breslau in Jahre 1872-73,' 'Deut. Arch.,' xiii, 126. J. Simon, "Relapsing Fever in the Metropolis," 'Lancet,' 1873, i, 72. McKellar, "The movements of Relapsing Fever in the Metropolis," ib. ib., 188. H. E. Armstrong, "Relapsing Fever at Newcastle-on-Tyne," ib. ib., 48. A. Rabagliati, 'On Relapsing Fever, with special relation to the Epidemic in Bradford in 1869,' 'Edin. Journ.,' xix, 497. J. Betz, "Case of Remittent Fever, complicated by Fungoid or Gelatinoid Tumours of the Intestines and Fatal Hæmorrhage" (man, æt. 24, no autopsy), 'New York Med. Journ.,' xviii, 59.

### *Insolatio (Sunstroke).*

W. H. Katzenbach ('New York Med. Journ.,' xvii, 91) writes on 55 cases of sunstroke admitted into the Bellevue Hospital during the summer of 1872. Of these, eight are briefly reported. There were 23 deaths, in most cases from apnœa, in many by rapid asthenia. Autopsies were made in three; the brain and membranes were congested in two, in the other anæmic; in all three the other viscera were congested.

### *The Acute Exanthemata.*

A. Monti writes ('Jahrb. f. Kinderheilk.,' vi, 20) on the changes which take place in the mucous membranes in the acute exanthemata. In 125 cases of *measles* he found little or no characteristic affection in only five, and these were suffering from some chronic disease. In normal cases the mucous membrane of the throat is affected twenty-two or twenty-four hours before the eruption appears. The posterior pillars and posterior wall of the pharynx are more intensely red than the anterior pillars and soft palate. Later on the redness disappears from the pharynx, and an eruption of red spots and papules covers the soft

and hard palate. Sometimes the follicles of the mucous membrane swell up as small bladders, resembling morbilli miliariformes on the skin. In hæmorrhagic measles this throat eruption puts on a similar appearance, and, of course, in cases where other affections, such as syphilis, diphtheria, &c., are present, varies in character. In those cases in which there is well-marked and great eruption on the skin, the mucous membrane of the mouth is also red, and the gums and lips especially are more or less swollen and covered with the same exanthem. In children affected with rickets or carious teeth, this swelling remains longer, and may be the starting-point of noma. The tongue shows no marked character; but, from twelve to twenty-four hours after the redness appears on the fauces, or in some cases simultaneously with it, the conjunctiva also becomes red. The mucous membrane of the nose and larynx shows the same changes. In opposition to measles, the intensity of the throat affection in *Scarlet fever* (l.c., 227) does not stand in direct relation to the exanthem, but varies with the character of the epidemic. 1. The simple throat affection is never absent, though the skin eruption may not be found. It commences generally in the centre of the soft palate and spreads over the anterior pillars and tonsils, never over the posterior wall of the pharynx. This prodromal redness, which Monti compares with an analogous redness in smallpox, where, however, it commences on the posterior wall of the pharynx—is characterised by its sharp outline; it becomes more intense in the next twelve or twenty-four hours, spreads, becomes punctated about six or twelve hours before the exanthem appears on the skin, and is accompained with pains in the neck, &c. It disappears either before or simultaneously with the skin eruption. In anomalous cases it becomes livid, and is accompanied by swelling of the uvula and tonsils and increased secretion from the nose and throat. The follicles of the tonsils may suppurate and burst. 2. Angina scarlatinosa maligna without diphtheria is rare; the tonsils, the cellular tissue about the throat, the parotid and submaxillary glands, are all involved. The suppuration in the tonsils may be followed by gangrene, spreading in various directions. Such cases are always fatal, while those in which gangrene follows diphtheria sometimes recover. 3. Diphtheritic angina does not, in the majority of epidemics, attack the larynx, and the writer has never observed it to be followed by paralysis of the extremities. He distinguishes three forms—(*a*) Simple circumscribed throat diphtheria, which begins like the simple throat affection, but is quickly followed by a membranous exudation on the tonsils, with excoriation of the mucous surface below. (*b*) Diffused throat diphtheria is always accompanied by great pyrexia and typhous symptoms, and spreads in all directions, in bad cases even to the larynx; it may get well in one to four weeks, or it may be further developed into—(*c*) Septic diphtheria, which is characterised by a livid red colour, œdema of the pharyngeal mucous membrane, distinct swelling of the cervical glands, and inflammatory infiltration of the cellular tissue of the neck. The tongue in the prodromal stages presents a white fur in the middle, with red tip and edges. As the eruption appears, it becomes entirely red, with prominent papillæ, regaining its normal appearance in from six to ten days. In complicated

cases it is dry and fissured, and imprinted by the teeth, and may be the seat of diphtheritic deposit. The gums, buccal mucous membrane, and hard palate, are not affected in scarlet fever; the lips become red and fissured in severe cases; the nose also is generally unaffected (in opposition to what occurs in measles). The larynx, in some rare cases, may be the seat of a primary affection (croup, diphtheria).

L. Kugelmann, 'Die Behandlung der acuten Exantheme (Masern, Scharlach, Blattern) durch continuirliche Ventilation,' Hanover, 1873. T. Simon, "Ueber Scharlach und Scharlach-ähnliche Ausschläge (Secundären Pocken-Rash) im Verlauf der Variola," 'Arch. f. Derm.,' v, 103. H. Mayer, "Ueber die Anwendung der antipyretischen Methode bei fieberhaften Krankheiten der Kinder," 'Jahrb. f. Kinderheilk.,' vi, 271.

## *Scarlet Fever.*

Henoch gives ('Berl. Klin. Woch.,' 1873, 593) several cases of nephritis after scarlet fever. In the first there was œdema without the presence of albumen or casts in the urine. Three days later the child had an uræmic attack, and his urine, withdrawn by a catheter, was loaded with albumen and granular casts. The autopsy showed intense parenchymatous nephritis. The second case, a child, æt. 6, had a slight attack of scarlet fever, and a fortnight later had œdema of the face, scanty urine, with abundant albumen, blood-cells, and "lymph-corpuscles." Gradually the urine became normal, but a few days later again became largely albuminous. Henoch noticed in the case of three children that their urine, which contained only traces of albumen, became loaded with it after fits of temper and crying; and in another child that after a purgative the urine in the morning was free from albumen, though it contained a certain amount of it in the evening. He found parenchymatous nephritis *post mortem* in a case in which no albumen had been found during life. He puts the question whether under these circumstances there occurs a nephritis without albuminous urine, or dropsy without nephritis; and remarks that partial œdema, especially of the feet, may be only a symptom of debility, without nephritis. In one of his cases there was a suppression of urine for seven days, when the patient died from an uræmic attack. He looks upon the following as tolerably certain appearances to be found in autopsies of scarlet fever cases:—Broncho-pneumonia; fatty degeneration, especially of the right heart; fatty liver; and swelling of the intestinal follicles and the lymphatic glands.

G. Bayles, "Scarlet Fever: Suggestions concerning its Treatment," 'New York Med. Journ.,' xviii, 225. S. W. Baker, "Scarlatina" (treatment by venesection, purgatives, calomel; mention of epidemic of 1832, in which only five died out of 247 cases), 'Boston Med. Surg. Journ.,' lxxxix, 468. A. W. Foot, "Enlargement of the Solitary Glands of the Ileon, latent Scarlet Fever" (girl, æt. 10, symptoms of ordinary cold, pleuro-pneumonia, albuminuria, death, peeling of the skin of the palms, swelling of all the solitary glands of the small intestine and of the mesenteric glands; Peyer's patches and the glands of the large intestine normal), 'Dubl. Journ.,' lvi, 264. "Outbreak of Scarlatina at Brentford," 'Lancet,' 1873, ii, 467.' W. E. S. Stanley, "Scarlatina during the Puerperal State," 'Brit. Med. Journ.,' 1874, ii, 366. J. Taylor, "The Wet Sheet in Scarlatina," 'Lancet,' 1874, ii, 692. H. Courtenay Fox, "Statistics of Scarlatina," 'Med. Times and Gaz.,' 1874, ii, 577, 680.

*Measles (Morbilli) and Rötheln (Rubeola).*

B. E. Cotting ('Boston Med. and Surg. Journ.,' lxxxviii, 485) gives an account of his observations of an epidemic of rötheln in the early part of 1871 and since 1852. It occurred at the end of an epidemic of measles and scarlet fever, and without any distinction attacked persons who had or had not had both those affections. It differed from scarlet fever in the slight intensity of the throat affection, from measles in the absence of the catarrhal symptoms, and from both in the earlier appearance of the eruption (during the first twenty-four hours), in the long period of incubation (about three weeks), and in the absence of desquamation.

Steiner ("Morbilli bullosi sivi pemphigoidei," 'Jahrb. f. Kinderheilk.' 1874, vii, 346) relates the occurrence of a bullous eruption in four children of the ages of 6, 5, 3 and ¾ years, who had all had measles one after the other. It appeared shortly after, and in one case before, the eruption of measles, on the most various points of the head, trunk, and extremities, and on the mucous membrane of the mouth and nose. The contents of the bullæ were alkaline. After lasting from one to two days, the bullæ became flat and scabbed over. Their appearance was accompained by an increase of temperature—in the four eldest, who recovered, it was between 38·5° and 40° C.; in the youngest, who died, it rose to 40·6° C. The writer holds that this was no combination of pemphigus with measles, but a modification of the latter eruption, similar to that often noticed in scarlet fever.

F. Bezold, "Keratomalacie nach Morbillen," 'Berl. Klin. Woch.,' 1874, 408. Brouardel, "Leçons sur la Rougeole," 'Gaz. des Hôp.,' 1874, 435. R. Liveing, "Clinical Lecture on Rötheln" (five cases), 'Lancet,' 1874, i, 360.

*Variola and Varicella.*

O. Scheby-Buch ('Arch. f. Derm.,' iv, 507, v, 200) analyses the materials gathered from the Smallpox Hospital at Hamburg between August 1, 1871, and Feb. 1, 1872, in 1413 cases of the disease, about 15 per cent. of which were fatal. The incubation stage was accompained in 58 cases (4 p. c.) with headache, pains in the back and limbs, vomiting, &c.; and in three cases, in which it could be accurately defined, lasted 22, 12, and 17 days. There was nothing out of the common in the prodromal stage; menstruation occurred pretty regularly in 270 cases (13 p. c.) at this period, and the writer holds that though variola, like other acute diseases, may influence the appearance of the menses, there is no connection whatever between the outbreak of smallpox and the time of menstruation. The urine was albuminous in about three fourths of the cases in which it was looked for—in about half the confluent and in almost all of the hæmorrhagic cases. As a rule, the albumen appeared and disappeared with the eruption; in the fatal cases it was present up to the end, and some of the few cases in which it appeared during convalescence terminated in death from acute nephritis. There were 67 cases of the true hæmorrhagic form, all fatal, hæmorrhage from the mucous membranes being common. The writer distinguishes from this another slighter form—"smallpox accompained by

hæmorrhage." Of this there were 93 cases, of which 53 died. Unlike the true form, this attacked persons of middle and later age, and those already undermined by drink or other causes. The prodromal exanthem, which is not to be confounded with the temporary erythema, was present in 237 cases, mostly those in early life; and was most commonly visible on the lower part of the abdomen and groins; it seems to stand in some sort of a relation to the smallpox eruption, as parts of the body attacked by the one remained free in the same patient from the other. He did not find Knecht's view, that in patients over thirty years old this prodromal exanthem preluded a severe attack, confirmed; and is himself inclined to look upon it as a modification of the true eruption. The mortality of vaccinated cases was 11½, that of unvaccinated 48½, per cent. Thirteen cases were revaccinated successfully; of these, two died, one having been vaccinated six, the other twenty-four years before. The paper contains further statistical accounts of the various complications and sequelæ, and the results found *post mortem*.

Pollak, in a review ('Wien. Med. Woch.,' 1873, No. 29) of the epidemic of smallpox in the garrison at Graz, between Jan., 1872, and April, 1873, finds the longest incubation period to have been sixteen days. Frequency of pulse and elevation of temperature during the eruptive fever did not aid much in the way of prognosis, though cases with well marked eruption and but slight feverish symptoms ended fatally. Cases in which the eruption had been preceded by a short prodromal stage ran their course better than those in which the latter had been long. Good results were obtained by pencilling the eruption with a solution of caustic potash in glycerine or carbolic acid ointment; but in spite of all measures directed towards isolation and disinfection, twenty-seven cases of the disease occurred in the hospital itself.

J. Haddon, after giving ('Med. Times and Gaz.,' 1873, i, 517) an account of the epidemic of smallpox at Eccles in July to November, 1871, states conclusions which agree in the main with those of Pollak. He found that in favourable cases the pulse and temperature ran in parallel lines; the longer the duration of the primary fever, the more serious is the prognosis, and if it lasts beyond the fourth day the case will certainly be severe. A high temperature does not indicate a severe case, any more than a low temperature does a mild one. The quicker and lower the temperature falls after the primary fever has ceased, the more favourable is the prognosis, and *vice versâ*. In favourable cases the tongue was tolerably moist, the urine abundant and of good colour; in the fatal cases the former was dry and brown, the latter high-coloured and scanty, while the delirium, present in seven cases, was rarely present in the fatal ones.

W. Zuelzer ('Centralbl.,' 1874, 82) has made experiments on apes (Cercopithecus) with blood and pus taken from patients suffering from variola. Two of the animals were fed on the pus mixed with bread-crumbs without being affected, nor did any result follow rubbing-in of the poison into the unwounded skin. Twelve days after the last experiment one of the same apes was inoculated with fresh blood from a severe case of smallpox—the blood containing a large quantity of bacteria. Six days later the temperature rose; there was temporary

loss of appetite, and an eruption which passed through the stages of red spots, papules, and pustules. The other ape was allowed to play with a wire basket (a sort of tea-strainer) containing smallpox scabs and lint impregnated with blood and pus, and in a fortnight it exhibited the same symptoms as the first ape. Zuelzer concludes that the blood of patients affected with smallpox is infectious. Infection does not occur through the medium of the digestive organs, and probably not through undamaged skin; but it does follow, not only from inoculation, but also from breathing air sufficiently impregnated with the poison.

H. Emminghaus records ('Arch. d. Heilk.,' xiv, 61) four cases of severe smallpox followed by delusions; one, a soldier, æt. 26, recovered; the rest, a man æt. 54, and two women æt. 38 and 60, died. He looks upon the symptoms as due to inanition; the blood, in the eruptive fever, undergoing a rapid process of oxidation. The paper contains some observations on "smallpox bacteria" and the occurrence of the fatty acids in the urine of patients suffering from smallpox.

C. Westphal ('Arch. f. Psych.,' iv, 335) observed, in two cases of varioloid, paraplegia of the lower extremities with paralysis of the bladder, followed by death. Careful sections of the cord in the fresh and the hardened condition showed extensive myelitis of large portions of the cord; enormous collections of granule-cells, with hyperæmia and dilatation of the vessels, the ganglia of the grey substance, however, remaining normal. He likens cases of this kind, occurring after acute affections, to the so-called essential paralysis of infants.

F. W. Goss gives ('Boston Med. and Surg. Journ.,' lxxxviii, 464) the case of a woman, æt. 50, in whom paralysis of all the extremities came on after a slight attack of varioloid. The patient died, but no autopsy was made.

A. Rodet ('Ann. de Derm. et Syph.,' iv, 21) publishes two sets of cases to show the non-identity of the origin of variola and varicella. M. Kaposi ('Arch. f. Derm.,' v, 255) holds that, as contagious diseases, the two are identical, a view upheld ('Jahrb. f. Kinderheilk.,' vi, 160) by Kassowitz, and opposed ('Wien. Med. Ztung,' 1873, 104) by Fleischman; the two last writers, the latter supported by Eisenschitz, discuss the subject at a meeting of the "Aertzliche Verein" at Vienna ('Arch. f. Derm.' v, 305.)

Siegel, "Die Pockenepidemie des Jahres 1871 im Umkreise von Leipzig," 'Arch. d. Heilk.,' xiv, 124. v. Pastau, "Beiträge zur Pockenstatistik nach den Erfahrungen aus der Pocken-Epidemie 1871-72 in Breslau," 'Deut. Arch.,' xii, 112. H. Auspitz, "Vorläufige Mittheilungen über das städtische Pockenhospital in IV. Bezirk zu Wien," 'Arch. f. Derm.,' v, 296. L. Colin, "Marche générale de l'épidémie de Variole de 1869-72," 'Gaz. Hebd.,' 1873, 399. Id., 'La Variole au point de vue épidémiologique et prophylactique,' Paris, 1873, pp. 160. Id., "La Variole et la Rougeole á l'hôpital militaire de Bicêtre pendant le siège de Paris," 'Union Méd.,' xv, 358. Perroud, "État de la Variole et de la Vaccine dans le département du Rhône pendant l'année 1782," 'Lyon Med.,' xii, 424. Id., on same during 1873, ib., xv, 471. B. Bianchi, "Il Vajuoli nel circondario sanitario di Suzzara, Brusalasso e Riva," 'Ann.Univ.,' ccxxiii, 285. G. Tempini, "Sulla recente epidemia di Vajuolo del comune di Bienno," 'Gaz. Med. Lomb.,' 1873, 217. D. Leasure, "Account of the Epidemic Smallpox as it prevailed in Allegheny City, Pa., in 1871, and its Treatment," 'Amer. Journ. Med. Sci.,' lxv, 74. M. E. Webb, "On the Smallpox Epidemic in Boston in 1872–73," 'Boston Med. Surg. Journ.,' lxxxix, 225. T. Darby, "On the late Epidemic of Smallpox,"

'Dubl. Journ.,' lv, 59. H. M. Jones, "Report on Smallpox," ib., 377. T. W. Grimshaw, "Report on the Smallpox Epidemic, 1871 to 1873, as observed in Cork-Street Fever Hospital," ib., lvi, 14. Moore, "On the Influence of Mean Temperature in Smallpox" (weekly temperatures in London, Liverpool, and Dublin, 1870-72), 'Brit. Med. Journ.,' 1873, ii, 717. "Outbreak of Smallpox at Newmarket," 'Lancet,' 1874, ii, 200. R. W. Foss, "A Localised Outbreak of Variola," 'Lancet,' 1873, ii, 734. A. Farr, "Smallpox, its Eruption and the Pathology of its Distribution," 'Med. Times and Gaz.,' 1873, i, 462. A. Ogston, "Observations on Smallpox," 'Med. Chir. Rev.,' li, 177. O. Obermeier, "Beiträge zur Kenntniss der Pocken: ii, Ueber die Beziehungen der Menstruation zu den Pocken" (the normal period falls in with the primary stage of smallpox), 'Virch. Arch.,' lvii. 31, W. T. Greene, "Notes on the late Epidemic of Smallpox," 'Med. Press and Circ.,' 1873, ii, 90. G. Gaskoin, "On the Sequelæ of Variola and Vaccinia since the last Epidemic of Smallpox in the Metropolis," ib., i, 504. E. Wigglesworth, "Hæmorrhagic Smallpox," 'Boston Med. Surg. Journ.,' lxxxviii, 25. J. Putnam, "Nervous Disorders occurring during Variola," ib., lxxxix, 125. S. G. Webber, "Paralysis during Variola," ib., lxxxviii, 515. R. Riva, "Alterazioni gravi del centri nervosi consecutivi a Vajuolo," 'Ann. Univ.,' ccxxiii, 294. N. Breganze, "Angina difterica consecutiva a Vajuolo," 'Gaz. Med. Lomb.,' 1873, 209. H. Lionville, "Cas de Varioloide discrète suivie d'une Méningite de nature probablement tuberculeuse; pendant la Méningite sueur limitée à la moitié de la face du côté droit avec dilatation de la pupille de ce même côté" (man, æt. 21, death, no autopsy), 'Gaz. Méd.,' 1873, 261. Révillod, "Variole; abortifs des pustules de la face," ib., 125. Guipon, "Propriétés abortives du perchlorure de fer dans la Variole," 'Bull. Gén. de Thérap.,' t. 87, p. 198. M. Schüller, "Zur Chinin-behandlung der Variola und localen Uebcrimpfung von Variola-Pusteln," 'Berl. Klin. Woch.,' 1873, 221. G. B. Ayr, "Osservazioni clinico-terapiche sul Vajuolo," 'Annal. Univ.,' ccxxiv, 105. M. Taylor, "The Treatment of Smallpox by Vaccination," 'Lancet,' 1873, i, 165. R. C. Furley (on same), ib. ib., ii, 40. H. Senator, "Ueber das Verhältniss der Varicella zur Variola," 'Jahrb. f. Kinderheilk.,' vii, 444. Henoch, "Ueber Varicellen (after measles; he holds the non-identity of varicella and variola)," 'Berl. Klin. Woch.,' 1874, 211.

## *Goitre, Exophthalmic Goitre.*[1]

Michaud ('Gaz. Méd.,' 1874, 17) writes on an epidemic outbreak of goitre in the garrison of St. Etienne in the summer of 1873, due, he thinks, to insufficient nourishment of the men affected. The officers and non-commissioned officers, who had better food, escaped completely. The utter uselessness of iodine, employed externally and internally, was remarkable, while by far the greater number of cases recovered under rest and improved rations.

Bergeret ('Compt. Rend.,' lxxvii, 731) writing on this same epidemic, and arriving pretty much at the same conclusion, refers to the view confirmed by observations carried on in Saxon-les-Bains, and in the neighbourhood of St. Léger, that the essential cause of goitre is the presence, to any large extent, of the sulphates of lime and magnesia in the drinking-water. Up to 1835 goitre and cretinism were common among the population of the first locality, but both affections have recently diminished, and the children of the present generation present no symptoms of either. The cause of this is to be found in the fact that they have ceased to drink water containing these salts. During the epidemic at St. Etienne, in which 250 cases occurred, he found, on analysing the urine during the affection, an increase to the extent of

[1] I have placed these two affections together here simply for the sake of convenience.—A. B. S.

four times the normal amount of sulphate of lime, which increase he conceives to be due to a storing up of the salt in the tissues due to over great muscular action.

This latter view is opposed by Larrey (ib. 733), who lays stress upon the mechanical effect of neck-stocks, &c., the exposure of the neck to cold while the body is heated, and the use of cold water; to this communication Bergeret makes answer (ib.).

F. Garrigou ('Gaz. Hebd.,' 1879, 270), after comparing various districts in the Pyrenees in which goitre and cretinism are endemic, concludes that the affection occurs exclusively in regions whose soil contains magnesia, and that the mountain water holds in solution the primary cause of this disease—probably a salt of magnesia in combination with a special organic substance.

*Goitre.*—V. Nivet, 'Études sur le Goître épidémique,' Paris, 1873. J. Fayrer, "On Bronchocele," 'Lancet,' 1874, ii, 580. Ludwig, "Ein Fall von acuten Kropf," 'Arch. d. Heilk.,' xiv, 94. Baillarger, "Goître et Crétinisme," 'Gaz. des Hôp.,' 1873, 1165. M. Parchappe, "Études sur le Goître et le Crétinisme; Documents mis en ordre et annotés par L. Lunier," Paris, 1874, 252. Michel, "De l'exstirpation complète de la glande thyroide dans les cas de goitres suffocants, cystiques ou parenchymateux (opération suivie de succès)," 'Gaz. Heb.,' 1873, 699. M. Mackenzie, "Fibro-cystic Goitre in a Dog," 'Path. Soc. Trans.,' xxv, 278.

*Exophthalmic Goitre.*—H. Lionville, "Du Goître exophthalmique" (lectures on two cases, women, æt. 39 and 32), 'Gaz. des Hôp.,' 1873, 107. R. Perry, "(*a*) Exophthalmic Goitre with Cardiac Disease and extensive Aortic Dilatation;" (*b*) "Exophthalmic Goitre with acute Articular Rheumatism and Bronchitis;" (*c*) "Exophthalmic Goitre with Pigmentation of the Skin," 'Glasg. Med. Journ.,' v, 401. Dobell, "Cases of Exophthalmic Goitre (Grave's disease)" (woman, æt. 23), 'Brit. Med. Journ.,' 1873, i. 227. Habershon, "Exophthalmic Goitre, Heart-disease, Jaundice, Death" (woman, æt. 20, autopsy; no remark as to cervical ganglia), 'Lancet,' 1874, i, 510. R. T. Smith, "On the Treatment of Exophthalmic Goitre with Belladonna" (females, æt. 24 and 26), ib. ib., i, 903. Shapley, "Cases of Grave's Disease" (man, æt. 29; three women, æt. 30, 33, 25), 'Med. Times and Gaz.,' 1874, ii, 212, 260. H. M. Jones, "Well-marked case of 'Anæmic Exophthalmic Goitre' treated by Seton through the Goitre and Digitalis" (woman, æt. 27), 'Brit. Med. Journ.,' 1874, ii, 775. W. W. Westcott, "Notes on a case of Exophthalmic Goitre" (boy, æt. 17), ib. ib., ii, 811. J. F. Goodhart, "Exophthalmic Goitre with Enlargement of Thymus" (woman, æt. 29), 'Path. Soc. Trans.,' xxv, 240.

## *Pellagra.*

The papers lately published on pellagra are but a continuation of the discussion between Gemma, Bellini, Balardini, and Lombroso as to the origin and etiology of this affection. Balardini, from his experiments on fowls, had insisted upon diseased maize as its cause; this view is strongly opposed by the first two writers, whom Balardini again answers; while Lombroso, in opposition to both sides, asserts his own theory to be still the right one (cf. last 'Bienn. Rep.,' p. 69.)

A. M. Gemma, "Nosografia e terapia della Pellagra," 'Annal. Univ.,' ccxxv, 3. Id., "Contributo all' etiologia della pellagra," 'Gaz. Med. Lomb.,' 1873, 138, &c. L. Bellini (on same), ib., 201. Balardini (on same), ib., 185. C. Lombroso (on same), ib., 385. J. Rossi, "Nuove osservazioni sopra la pellagra desunte dalle cause, dalle origine e dalla sede," Soresina, 1873. Siredey, "Observation de Pseudo-Pellagre-chez une femme arrivée à la période cachectique de l'alcoolisme et n'ayant jamais fait usage de maïs," 'Union Méd.,' xvi, 130.

## *Other Endemic Diseases.*[1]

*Leprosy.*—R. Thoma, "Beiträge zur pathologischen Anatomie der Lepra Arabum," 'Virch. Arch.,' lvii, 455. Nicaise, "De la Lepre," 'Gaz. Méd.,' 1873, 498. Poncet, "Mal perforant et Lepre Antonine," 'Réc. de Mém. de Méd. Milit.,' xxix, 566. G. Milroy, "Leprosy: is it propagated by Contagion or by Lactation?" 'Lancet,' 1873, ii, 26. "Report on the Beauperthuy Treatment of Leprosy," ib. ib., ii, 339. Liveing, "Lectures on Elephantiasis Græcorum, or true Leprosy," 'Brit. Med. Journ.,' 1873, i, 277. A. D. Walker, "The Leprosy of the Bible," ib. ib., 313. A. Leared, "A Visit to a Leper Village," ib. ib., 402. C. Gaskoin, "A case of Tubercular Leprosy," ib. ib., 655. G. Milroy, 'Report on Leprosy and Yaws in the West Indies,' 1873. H. V. Carter, "The Pathology of Leprosy, with a note on the segregation of Lepers in India," 'Med.-Chir. Trans.,' lvi, 267. J. Wortabet, "Memoir on Leprosy in Syria," 'Med.-Chir. Rev.,' lii, 173. F. H. Welch, "On Elephantiasis Græcorum in New Brunswick, North America," 'Lancet,' 1874, ii, 795. G. Fritsche, "Two unusual cases of Elephantiasis Arabum (Dermatolysis)" (man, æt. 26; woman, æt. 25), 'Clin. Soc. Trans.,' vi, 160.

*Sleeping Sickness.*—J. W. Ogle, "Sleeping Sickness," 'Med. Times and Gaz.,' 1873, ii. 61.

*Madura Foot.*—H. V. Carter, "The Parasitic Fungus of Mycetoma, or the Fungus-disease of India," 'Path. Soc. Trans.,' xxiv, 260. Id., "On the Nature of Mycetoma," 'Lancet,' 1874, ii, 44, and separate work, London, 1874, pp. 591.

## *Leuchæmia.*

F. Mosler ("Zur Symptomatologie der Myelogenen Leukämie," Virch. Arch., lvii, 532) records the following case. A man, æt. 44, who had for some time suffered from intermittent fever, with enlargement of the spleen, injured the left side of his abdomen in mounting his horse. Symptoms of inflammation presented themselves, followed by leuchæmia, with large increase in the number of white blood-corpuscles; pain over the sternum, but no enlargement of the glands. The patient died suddenly from hæmorrhage due to follicular ulceration of the stomach. The marrow of the sternum was of a dirty greyish-white appearance; several irregular cavities about the size of a pea existed in the spongy substance of the body of the bone, one place about the size of an almond exactly resembling a bone-abscess. The medullary tissue of a lumbar vertebra and one thigh presented a similar dirty yellowish colour; the medullary vessels contained here and there numerous white blood-corpuscles.

Huber ("Zur Myelogenen Leukämie," 'Deut. Arch.,' xii, 389) gives an exactly similar case. A man, æt. 43, had been subject to rigors of short duration for eight years. For two years before he came under observation he had complained of loss of power, dyspnœa, and cough. His

[1] "In a little but most interesting work by M. Vergnaud-Romagnesi, called 'Orléans et ses environs,' he speaks of two little villages, Val and Sologne, near Orléans, separated only by a few fields. The inhabitants of the latter are called *Solognots*, an unfortunate, sorry race. From the age of three years they contract a disease of the stomach called *carreau*, which never leaves them while they stay at home, but is cured the moment they quit the village. Their hair becomes exceedingly dark, and their complexion leaden. Very large and disfiguring teeth, that fall out in premature old age. A shrill voice, and small, almost deformed figures."—'Our Autumn Holiday on French Rivers,' London, 1874, p. 255. In the absence of any present means of verifying this, I think it well to notice it as at least interesting.—A. B. S.

skin was pale, his legs œdematous, his temperature normal. There was nothing abnormal in the chest, no enlargement of the liver or the lymphatic glands; the spleen was greatly increased in size; the red blood-corpuscles stood in the relation of two to one of the white. He had frequent epistaxis, general œdema, effusion into the left pleural cavity, ascites, and diarrhœa followed by death. The osseous system had been carefully examined during life, but nothing abnormal had been discovered. The autopsy revealed the ribs, sternum, and pelvis, filled with dirty greenish-yellow marrow. The spleen was hard, measuring 25 cm. in length by 12 in breadth; the left pleural cavity was filled with serum; several drops of blood resembling pus were found in the left ventricle. The microscopical examination of the spleen showed great development of the trabeculæ; in its tissue as well as in the blood from the splenic vein were found the fine spindle-shaped crystals often described as occurring in leuchæmia. The marrow of the ribs was exceedingly soft, greyish red, made up of thickly packed marrow-cells, without any transitional forms. The crystals were more numerous in the marrow than elsewhere.

R. Southey collects the histories ('St. Barth. Hosp. Rep.,' ix, 46) of nine cases of adenoid disease, two occurring in his own practice, the rest in that of Sibson, Church, Moxon, Murchison, Payne, Pye-Smith, Hodgkin, Wilks, Bright, and Addison. He objects to the term leuchæmia or leucocythæmia, because an excess of white cells in the blood is not a common or abiding symptom. He gives in addition notes of two cases of Virchow's "splenic" form of leucæmia, and holds that the views of that writer as to this form apply also to the "lymphatic;" that is to say, "that to every case there is both an early and a late stage—a stage of follicular activity, in which the corpuscular elements of the glands multiply and develop, furnish an abundant milky juice when cut and squeezed, and attended by acute febrile sympathetic disturbance, anorexia, and vomiting; and a late stage of interstitial stroma increase, when the interfollicular elements, at first rich in nuclei, loose and delicate in structure, afterwards increase in toughness, develop and fibrillate, forming that trabecular framework which perfects the gland-like tumour." Thus, Virchow's hard and soft forms of lympho-sarcoma may be really only early and late stages of the same pathological process.

O. Bollinger ('Centralbl.,' 1874, 600) has observed the occurrence of leuchæmia in two dogs, and gives a short review of other cases already observed in the domestic animals (three dogs, two pigs, and a cat). He concludes that the disease, especially in the dog and pig, is essentially the same as that seen in the human subject, not only as occurring under the same different types, but also in the pathological changes found in the liver, lungs, and kidneys, and in the tendency to hæmorrhage.

T. Anderson, "Leucocythemia in the Insane" (case of a man, æt. 51, autopsy), 'Med. Times and Gaz.,' 1873, i, 571. E. Wells, "Rapid case of supposed Leucocythemia" (boy, æt. 2½), 'Brit. Med. Journ.,' 1874, ii, 305. Perrin, "Note sur un cas du Rétinite Leucémique," 'Gaz. des Hôp.,' 1874, 419. Ossikousky, "Sur la composition du sang dans la Leucémie," 'Gaz. Méd.,' 1874, 198. F. Taylor, "Leucocy-

themia, with Hypertrophy of the Spleen and Lymphatic Glands and Lymphadenoma of the Pleura, Mediastinum, Liver, Kidneys, and Epididymis" (boy, æt. 12), 'Path. Soc. Trans.,' xxv, 246. W. H. Cripps, "Adenoid Disease," ib., 245.

## *Muscular Atrophy and Hypertrophy.*

H. Eichhorst writes ('Berl. Klin. Woch.,' 1873, 497) on the hereditary character of progressive muscular atrophy. The examples occurred in a family, the oldest living member of which, a female, suffered from the disease. The father, grandfather, and great-grandfather of this woman had been affected in the same way. Of her ten brothers and sisters only one sister had been attacked, the brothers, however, dying at a relatively early age. At the time the notes were made the woman was seventy years old, and of her seven children, three out of four boys and one out of three girls had inherited the disease, as also did two of her grandchildren, sons of the one healthy son, and of one of the healthy daughters, and two out of three of her nieces. The affection began in almost all with weakness and wasting of the thighs, and later of the hands.

E. H. Greenhow records ('Clin. Soc. Trans.,' vi, 149) a case of acute muscular atrophy. The patient, a woman, æt. 26, was the sister of a woman who had died at the age of 27 of progressive muscular atrophy (see 'Clin. Soc. Trans.,' v, 210). The chief symptoms during life were weakness, pain in the shoulders, arms, and abdomen, delirium, a very frequent pulse, constantly elevated temperature, increasing loss of power, and somewhat sudden death. The urine, as in the former case, acquired, after standing some hours, a deep reddish-purple hue, due to the presence of uro-erythrine. The autopsy showed the body apparently well nourished; muscles of the normal colour; no apparent wasting of any but the pectoral muscles, which were thinner than usual. The spinal cord was firm and apparently normal. On dividing it a large vessel full of blood was seen in the mid-dorsal region, close to the central canal. The lumen of the canal could not be made out even with the aid of a lens. The brain and other organs were tolerably normal, but greatly congested. Most of the fibres from the extensors of the forearms presented within the sarcolemma a finely granular appearance, resembling ground glass. There was no fat within the sarcolemma. Portions of various voluntary muscles and of the heart showed the same change—an important point in reference to the latter organ, which has not been found in recorded cases of atrophy to have undergone the granular degeneration. Examination of the cord showed the multipolar cells of both anterior and posterior horns, and of the posterior vesicular column altered by deposition of pigment-granules; their nuclei and nucleoli enlarged and pigmented. The nerve-processes retained the same granular aspect for a short distance. The central canal was choked with non-nucleated corpuscles of various sizes, and with *débris* of its epithelium. The spaces through which the arteries pass up by the sides of the central canal were much enlarged by loss of substance of the transverse commissure. The writer holds that the muscular atrophy in this case was a primary disease, and that it was the cause of death.

J. Lockhart Clarke gives in full an account ('Med. Chir. Trans.,' lvi, 103) of the microscopical appearances found in the brain and spinal cord of a man, æt. 60, who died from progressive muscular atrophy, accompanied by muscular rigidity and contraction of the joints. He remarks that the symptoms are very clearly explained by the morbid changes found. The embarrassed articulation, the nasal character of the voice, the difficulty in swallowing, and the constant escape of saliva from the mouth, all exhibited by this patient, and resembling the group of symptoms which constitute glosso-labio-laryngeal paralysis, are explained by the alterations seen in the nuclei of the facial, hypoglossal, vagus and spinal accessory nerves. The great feebleness of the respiratory movements is accounted for by the lesions found in the anterior and lateral grey substance of the cervical and dorsal regions of the cord, including the *tractus intermedio-lateralis*, which the writer has already shown to be connected with the rootlets of the spinal accessory nerve and with the anterior roots supplying the respiratory muscles. The same progressive lesion of the anterior grey substance in the dorsal and lumbar regions explains the paralysis of the extremities, and the marked sclerosis of the antero-lateral columns, with the contraction and stiffness of the joints, confirms Charcot's view ('Arch. de Phys.,' 1869) as to the connection between these symptoms and the morbid changes found.

W. M. Ord gives ('Med.-Chir. Trans.,' lvii, 11) the notes of a case of Duchenne's pseudo-hypertrophic paralysis occurring in a boy, æt. 7, who for two years had suffered from progressive weakness of the back and lower limbs. The sacro-spinal muscles and the muscles of the thigh were thin and poor, but the calves were distinctly overgrown. The latter were warmer than the thighs by 1·9° to 3·9° F. Fibres of the muscles removed by an *emporte-pièce* showed no degeneration, but some increase of the white fibrous element between the primitive fasciculi. He suggests, on these facts, that the disease was in a very early stage, and largely due to vaso-motor derangement, probably paralytic.

J. T. Dickson, "On the changes which occur in the Spinal Cord after Amputation of a Limb, compared with the changes found in association with Progressive Muscular Atrophy" (with drawings), 'Path. Soc. Trans.,' xxiv, 2. A. Kussmaul, "Ueber die fortschreitende Bulbarparalyse und ihr Verhältniss zur Progressive Muskel-hypertrophie," 'Volkmann's Vorträge,' ser. iii, No. 54. M. Friedreich, 'Ueber Progressive Muskelatrophie, uber wahre und falsche Muskelhypertrophie,' Berlin, 1873, pp. 358 (with two plates). Uhde, "Ueber einen mittelst Sehnenschnitts behandelten Fall von Myopachyosis lipomatosa (Griesinger's Muskelhypertrophie)" (boy, æt. 11), 'Arch. f. Klin. Chir.' xvi, pt. 2. J. L. Clarke and W. R. Gowers, "On a case of Pseudo-hypertrophic Muscular Paralysis" (boy, æt. 19, autopsy, 'Med.-Chir. Trans.,' lvii, 247. Lake, "Case of Pseudo-hypertrophic Paralysis" (boy, æt. 9), 'Lancet,' 1873, ii, 113. J. Hutchinson, "Case of Pseudo-hypertrophic Paralysis" (boy, æt. 10), ib. ib., ii, 44. B. Foster, "A case of Pseudo-hypertrophic Paralysis (Duchenne's Paralysis) in the third stage" (in a boy), ib., 1874, i, 542. Ramskill, "Paralysis of Hands and Feet, Progressive Muscular Atrophy, Disease of Spinal Cord" (man, æt. 43), ib. ib., i, 475. Id., "Progressive Muscular Atrophy" (man, æt. 36), ib. ib., i. 476. G. M. Beard, "Progressive Muscular Atrophy of the Right Hand, three years' standing, Pain in Back, Numbness and Coldness, and Neuralgia of the Arm, Disease of the Skin, apparent arrest of the disease under Galvanization of the Spine and Peripheral

Faradization" (man, middle-aged), 'New York Med. Journ.,' xix, 395. Sourier, "Atrophie Musculaire progressive, guérison" (man, æt. 35), 'Gaz. des Hôp.,' 1874, 754. Gueury and Cuignet, "Paralysie partielle des membres supérieurs, congénitale, héréditaire progressive avec ou sans Atrophie musculaire" (man, æt. 22), 'Union Méd.,' xvii, 955.

## *Diabetes.*

F. Bürger ('Deut. Arch.,' xi, 323) has made investigations into the insensible perspiration in diabetes mellitus and insipidus. He refers to the uncertain views held with regard to the subject. Some writers assert that it is not a perspiration, but an insensible attraction of moisture from the air, and in this way explain the supposed fact that diabetic patients secrete with their urine more fluid than they take with their food without decreasing in weight. In opposition to this Nasse had shown that they did not, when placed in a bath, absorb water through their skin. Bürger's researches were made on a child suffering from diabetes insipidus and two adults affected with diabetes mellitus, and were compared with the same experiments made on healthy persons of the same age. He finds that the insensible perspiration is very much diminished—a fact already shown by the very dry state of skin. Fluid absorbed was never exceeded by that given off without corresponding loss of weight. In the child, for instance, the insensible exudation was, in three different periods of 24 hours, 685, 544, and 537 grm., while in a healthy girl of the same age it was, in the same periods, 901, 683, and 949 grm. The average amount of perspiration in the child was 8 per cent., in the two adults 8·3 and 4·3 per cent.—the normal quantity being, according to Vierordt, from 32 to 33 per cent. The conclusion drawn from this diminution of sweating is that the polyuria and not the polydipsia is the primary symptom. In opposition to the conclusions of Mosler and Strauss, Bürger found no inosite in 7000 centimeters of urine passed by his patient with diabetes insipidus.

W. Ebstein (ib., 344) writes on the relation of diabetes insipidus to affections of the nervous system. With an analysis of cases already recorded he combines some observations of his own. In cases where an autopsy was made, the seat of change was found to be either the medulla oblongata or the floor of the fourth ventricle, or portions of brain substance were found to be in a condition of inflammation or of alteration from new growths, the latter exercising some pressure on the medulla. In other cases, in which no autopsy was made, he refers the symptoms to probable hæmorrhage into the medulla oblongata. Other cases occur in which, with well-marked symptoms of affection of the medulla, there was no change in the urine, or, instead of a diabetes insipidus, a diabetes mellitus or inosituria was found. On the relation of the disease to epilepsy, to alcoholism, and to affections of the spine, he has not much to say. In cases of hysteria and other neuroses in which there is an increased flow of urine, he would look for the cause in some affection of the vaso-motor nerves, by which the pressure is regulated in the glomeruli of the kidneys.

Zimmer concludes, from his observations of diabetic patients ('Deut.

Klin.,' 1873, 61), that the muscles as well as the liver have a share in the production of the sugar (cf. last 'Report,' p. 72).

F. Mosler gives ('Virch. Arch.,' lviii, 44) a paper on the neuropathic origin of simple hydruria (diabetes insipidus) from epidemic cerebro-spinal meningitis, injury, and syphilis. In the first case, which followed an attack of cerebro-spinal meningitis in a boy aged seven years, he thinks that the local disease had probably produced some structural change in the fourth ventricle or its neighbourhood. In the second, a boy, æt 17, it occurred as the result of a fall on the head. Here the probable cause was hæmorrhage into the fourth ventricle, with rupture of the brain substance and a consequent cicatrix. The diabetes lasted fourteen years, and was treated, with great success, with large doses of acetate of lead. The third case was that of a man, aged 50, in whom the polyuria was the first symptom of syphilitic disease of the brain, and was followed by epileptiform convulsions. Anti-syphilitic treatment caused decrease of the diabetes, but later there was paralysis and aphasia and general marasmus. After death there was found extensive softening of the left hemisphere, the medulla, and the pons.

F. O. Kämnitz publishes ('Arch. d. Heilk.,' xiv, 447) the case of a girl, aged 17, who, becoming entangled in some machinery, sustained a fracture of the base of the skull, and afterwards suffered from diabetes, from which she subsequently recovered. The writer thinks that the injury to the head caused concussion of the brain and extravasation into the medulla oblongata, and that the latter was the cause, probably, of the diabetes.

F. Kretschy ('Wien. Med. Woch.,' 1873, No. 3) gives two cases of diabetes in which, of many drugs and means of treatment used, morphia alone was found to be of real service. The patients were of the ages of 43 and 23, the first having been suffering a year, the latter three weeks (! *Rep.*). The drug was given in doses ranging from a fifth of a grain to about three grains daily, by gradual increase.

C. H. Fagge relates ('Guy's Hosp. Rep.,' xix, 173) a case of diabetic coma treated with partial success by the injection of a saline solution into the blood. The patient, a man, æt. 38, lay comatose before the operation, with his eyes drawn up and half-closed lids; his pulse was scarcely perceptible; he could not speak, and could scarcely swallow. Five hours later he was quite conscious, sat up in bed, answered questions and took his medicine, holding the glass in his own hands. The improvement lasted about twenty-four hours, when he suddenly died. Notes of the autopsy are added. The advisability of the operation was suggested by the idea that the coma was due to the drain of water from the system caused by the diabetes.

F. Taylor (ib., 521) gives a case in which the same means was tried. The patient was a woman, æt. 22, whose condition at the time of the operation was one of coma combined with collapse. The result in this case was very much less satisfactory than in the former. For a short time the colour returned to her lips and cheeks, the pulse beat with fair force, and the temperature in the axilla rose from 95·2° to 96·7° F.; but the improvement was only temporary, and she died two hours after the operation. The autopsy, as in the former case, revealed no lung complication.

H. Kraussold, 'Zur Pathologie und Therapie des Diabetes Mellitus,' Erlangen, 1874, pp. 33. E. Külz, "Beiträge zur Pathologie und Therapie des Diabetes Insipidus,' Marburg, 1874, pp. 222. Id., "Studien über Diabetes Mellitus und Insipidus," 'Deut. Arch.,' xii, 248. E. Harnack, "Zur Pathogenese und Therapie des Diabetes Mellitus," ib., xiii, 593. Kussmaul, "Zu Lehre vom Diabetes Mellitus. Ueber eine eigenthumliche Todesart bei Diabetischen, über Acetonämie, Glycerinbehandlung des Diabetes und Einspritzungen von Diastase ins Blut bei dieser Krankheit," ib., xiv, 1. M. Bernhardt, "Ueber den Zuckerstich bei Vögeln," 'Virch. Arch.,' lix, 407. Kratschmer, "Versuche bei Diabetes Mellitus," 'Wien. Med. Woch.,' 1873, No. 20. R. Schmitz, "Vier Falle von geheilten Diabetes Mellitus und Kürze Bemerkungen über die Entstehung derselben," 'Berl. Klin. Woch.,' 1873, 211. J. Blumenthal, "Zur Therapie des Diabetes Mellitus" (man, æt. 34, treated with quinine), ib., 148. W. Ebstein and J. Müller, "Ueber die Behandlung der Zuckerharnruhr mit Carbolsäure," ib., 580. F. Rubstein, "Ueber das Auftreten des Acetons beim Diabetes Mellitus," 'Centralbl.,' 1874, 865. W. L. Lehmann, 'Het arsenigzuur als Geneesmiddel by Diabetes Mellitus,' Amsterdam, 1873, pp. 76. O. N. Lécorché, "Considérations théorétiques et thérapeutiques sur le Diabète sucré," 'Gaz. Heb.,' 1873, 382. Liouville, "Hémorrhagie dans la protubérance avec Polyurie, Albuminurie et Glycosurie," ib., 341. V. Revillout, "De l'Azoturie," 'Gaz. des Hôp.,' 1873, 683. Bouchard, "Études sur l'administration de la Valériane dans le Diabète insipide," 'Gaz. Méd.,' 1873, 371. Bradbury, "Case of Diabetes Insipidus, rapid improvement under the use of Valerian" (man, æt. 23), 'Lancet, 1873, i, 50. Harris, "Diabetes Mellitus, relieved by the administration of Opium" (man, æt. 28), ib., i, 341. Kennedy, "Case of Diabetes Mellitus" (girl, æt. 17), ib., 1874, i, 835. B. W. Richardson, "Diabetes from Carbonic Oxide," ib., ii, 340. A. S. Donkin, "Further Observations on the Skim-milk Treatment of Diabetes Mellitus," ib., 1873, i, 45. A. W. Barclay, "On the Skim-milk Treatment of Diabetes Mellitus," ib., 1873, i, 727 (and see discussion on same, ib. ib., 788). E. H. Greenhow, "Case of Diabetes treated with Skimmed Milk" (man, æt. 56), 'Clin. Soc. Trans.,' vi, 182. Bridgman, "Case of Diabetes Mellitus," 'Med. Press and Circ.,' 1873, i, 157. A. M. Pierce, "Diabetes followed by Albuminuria and Death," 'New York Med. Journ.,' xx, 188. J. W. Ogle, "Two cases of Saccharine Diabetes treated with Lactic Acid," 'Brit. Med. Journ.,' 1873, i, 253. B. Foster, "Diabetes Mellitus, showing the effects of diet, skimmed milk, lactic acid and opium, arsenic and valerian," (man, æt. 50), ib., 1874, i, 620. T. L. Brunton, "Lectures on the Pathology and Treatment of Diabetes Mellitus," ib. ib., i, 1. T. Niedergesäss, 'Diabetes Mellitus infantum,' Berlin, 1873, pp. 32.

## *Rheumatism, Gout, &c.*

T. B. Peacock ('St. Thomas's Hosp. Rep.,' iii, 1) deduces the following conclusions from 87 cases of acute rheumatism. The disease is more common in men than in women, on account of their greater liability to exposure. The chronic form is most common in old persons, the acute in early life. One attack of the acute affection predisposes to another (in one case there were nine attacks). In much the larger proportion of cases the disease was of a mild or subacute character, the temperature in comparatively few cases exceeding 103° F. In 33.3 per cent. of the whole number of cases, or in one case in three, there was either recent or old cardiac complication. These complications are more frequent in the male than in the female, and in early than in advanced age, but they do not appear to differ much in proportion to the intensity of the rheumatic fever; endocarditis, however, was especially common in the cases of more severe disease, while pericarditis more particularly occurred in the slighter cases. The latter is more curable than the former. Other serious complications found in these cases were inflammation of the lungs and pleuræ in six, slight chorea in one, and

albuminuria in two. The whole of the 87 cases recovered more or less completely, except one, a boy, who died of pericarditis and old heart disease in a third slight attack of rheumatism. The treatment consisted in the employment of bicarbonate of potash, with or without the nitrate. In the subacute cases iodide of potassium, bicarbonate of potash, and small doses of colchicum, were used, with Dover's powder or opium at night if the pain was severe; small doses of mercury; blisters followed by poultices above the affected joints, and over the heart when it became affected; with tonics and stimulants during convalescence. In the uncomplicated cases the mean duration of treatment and the duration of illness were 20·09 and 25·6 days respectively; in the complicated ones, 21·5 and 33·5 days. The paper concludes with brief abstracts of the cases on which these conclusions are based.

P. H. Pye-Smith has collected ('Guy's Hosp. Rep.,' xix, 311) all the cases which occurred in the hospital during the years 1870, 1871, and 1872, as a contribution to a more precise definition of the relation between genuine rheumatism and its supposed allies—gout, osteo-arthritis, and gonorrhœal synovitis. The paper also includes remarks on the connection between rheumatism and chorea, and rheumatism and pyæmia. The writer has analysed 400 cases of acute rheumatism, into the etiology and symptoms of which he enters at length. Of the whole number, only 18 died—4·5 per cent., or, deducting those cases which died from what may be called accidental causes, the real percentage would be less than 4. Three deaths occurred from hyperpyrexia; one from diphtheria, which appeared in the middle of the attack; another from syncope, owing to previous rheumatic disease of the aortic valves, and a third from a fit of epilepsy; the causes of death in the rest of the cases were cardiac inflammation and pneumonia. Of 150 tabulated cases of chorea, only four were fatal; but the writer adds short notes of eleven other fatal cases from his own note-book. There was evidence of endocarditis in every case, and he has seen only one autopsy in which it was not found. Sixty-one cases of gout occurred in the three years, 54 in men and 7 in women; seven of these were fatal; to these seven the writer adds notes of three others. Two of these ten cases died from malignant disease, unconnected with gout except by its preference for the same period of life; all the rest had granular degeneration of the kidneys. Notes of 29 cases of gonorrhœal synovitis, all in men, and of the same number of osteo-arthritis, eight in men and 21 in women, follow. Of the first the writer remarks that he has never seen it in a woman, while the second is more common in the female sex. He gives in the text his reasons for believing that there is no pathological connection between rheumatism, gout, and gonorrhœal synovitis. As to the connection between osteo-arthritis and the two former affections, he holds that a much larger number of cases are necessary in order to form anything like a safe conclusion on the subject. In reference to pyæmia, he thinks that three ways may be distinguished in which that affection and rheumatism are allied—(1) cases of apparently simple rheumatism which go on to suppurations of the joints, often with purulent pericarditis and pleurisy; (2) cases of pyæmia arising from ulcerative

endocarditis of rheumatic origin; (3) cases of ordinary traumatic pyæmia where acute endocarditis is one of the results. The paper concludes with a tabular statement of some of the chief points in the natural history of rheumatism and the other diseases under discussion.

As will be seen below, numerous papers have been published during the last two years on the treatment of rheumatism. Perhaps the most important are those of Dujardin-Beaumetz, who claims for trimethylamine that from the first day of taking the drug the pain diminishes, the fever decreases, the swellings of the joints disappear, and the appetite returns.

H. Immerman, "Rheumatismus acutus mit terminaler Hyperpyrexie (42·8° C.)," 'Deut. Arch.,' xii, 173. J. D. Heaton, "Case of fatal Hyperpyrexia occurring in Acute Rheumatism" (woman, æt. 23, highest temperature 110° F., autopsy), 'Brit. Med. Journ.,' 1874, i, 703. R. Macnab, "Case of High Temperature in Rheumatic Fever" (boy, æt. 19, at instant of death temperature of 111·4° F.), 'Lancet,' 1873, ii, 341. H. Thompson, "Two cases of Acute Rheumatism, with high temperature" (man, æt. 26; woman, æt. 32), 'Med. Times and Gaz.,' 1873, i, 269. R. Southey, "Case of Acute Rheumatism with High Temperature (105°) and Delirium, treated by cold affusion, death and post-mortem" (man, æt. 35), 'Clin. Soc. Trans.,' vi, 1. E. H. Greenhow, "Case of Acute Rheumatism with Cerebral Symptoms and High Temperature (106·2° in rectum), treated with cold baths," ib. ib., 7. J. W. Ogle, "Acute Rheumatic Fever, Pericarditis with much Effusion, expected necessity for Tapping the Pericardium, Pleurisy, Recovery, Remarks on Paracentesis Pericardii" (man, æt. 34), ib., ib., 131. Land, "Acute Rheumatism and Chorea" (boy, æt. 12, ordinary case), 'Lancet, 1873, i, 38. F. J. Buckel (similar case, girl, æt. 16), ib. ib., 121. C. Black, "Cerebral Rheumatism," ib. ib., 801. Sansom, "Case of Rheumatic Fever" (boy, æt. 9, mitral contraction), ib. ib., ii, 811. S. Wilks, "Acute Articular Rheumatism treated by Acids, remarks," ib., 1874, i, 231. R. C. Lucas, "On the Treatment of Acute Rheumatism with Acids," ib. ib., i, 296. T. B. Peacock, "Remarks on the Blister-treatment of Rheumatism," 'Brit. Med. Journ.,' 1873, i, 55. J. W. Allen, "Case of Acute Rheumatism" (boy, æt. 14), ib., 1874, ii, 277. A. W. Barclay, "On the Employment of Quinine in the Treatment of Rheumatic Fever," 'St. George's Hosp. Rep.,' vi, 101. J. Haddon, "Acute Rheumatism in Private Practice" (five cases, treated with alkalies), 'Edin. Journ.,' xviii, 825. C. Handfield Jones, "Three cases of Anomalous Rheumatism," 'Med. Times and Gaz.,' 1873, i, 4. Russel, "A case of Acute Rheumatism in which Pericardial and Pleural Effusion underwent remarkable variations at different periods of the case, temperature record," ib. ib., ii, 635. Picot, "Du Rhumatisme aigu et de ses diverses manifestations chez les enfants," 'Gaz. des Hôp.,' 1873, 284. M. Féréol, "Rhumatisme articulaire aigu, généralisé (quatrième attaque), complication de pleurésie double, de purpura hémorrhagique et de suette miliaire avec hydroa pemphygoide, guérison;" ib. ib., 482. Gueneau de Mussy, "Leçons cliniques sur le Traitement du Rhumatisme chronique, ib. ib., 33. Girard, "Rhumatisme chronique, hydrarthrose successive des genoux, convalescence," ib. ib., 522. Crocq, "Arthrite aigüe mono-articulaire et Endocardite" (man, æt. 53), 'Presse Med. Belge,' 1874, 175. A. Sabourin, "Du Rhumatisme Scapulaire atrophique et de l'Atrophie musculaire rhumatismale," 'Arch. Gén.,' xxiv, 141. Meynet, "Rhumatisme articulaire aigu survenu dans le cours d' une Blennorrhagie, endopéricardite consécutive, épanchement pleurétique, thoracentése, guérison" (boy, æt. 17), 'Lyon Méd.,' xii, 91 (and see discussion, ib., 107). Marmonier, "De la Péritonite et de la Pneumonie de nature rhumatismale," ib., xiii, 476. Raymond, "Lypémanie avec Aphasie et Amnésie temporaires en corrélation avec la diathèse rhumatismale," 'Gaz. Hebd.,' 1873, 686. F. M. Luther, "Lichenoid Eczema of the Face connected with the Arthritic Diathesis, probably due to lack of innervation of the fifth pair of nerves," 'Med. Press and Circ.,' 1873, i, 245. W. Oehme, "Die Behandlung des Rheumatismus acutus mit festen Verbänden," 'Arch. d. Heilk.,' xvi, 385. Dujardin-Beaumetz, "De la Propylamine et de la Triméthylamine dans le traitement du Rhumatisme articulaire aigu," 'Union Méd.,' xv, 62. Id., "Du Chlorhydrate de Triméthylamine dans le traitement, &c.," 'Bull. Gén. de Thérap.,' t. 84, p. 337.

(and see ib., p. 227; 'Gaz. Hebd.,' 1873, 193; 'Gaz. des Hôp.,' 1873, 73). G. Bouchard, "Rhumatisme articulaire aigu, Propylamine, guérison," ib., 320. Marty, "Rhumatisme polyarticulaire aigu survenu dans la cours d'une Dysenterie; emploi de la Propylamine, guérison," ib., 460. Fourrier, "Rhumatisme articulaire aigu, traitement par le Chlorhydrate de Triméthylamine, guérison," ib., t. 85, p. 412. Blachez, "Traitement du Rhumatisme par la Propylamine," 'Gaz. Hebd.,' 1873, 33. L. Martineau, "Note sur le Traitement du Rhumatisme articulaire aigu par le Chlorhydrate de Triméthylamine," 'Gaz. Méd.,' 1873, 181. Pirotais, "De la Propylamine dans le Rhumatisme articulaire aigu," 'Gaz. des Hôp.,' 1873, 266 (and see ib., 937). A. Cottard, 'De la Valeur de la Triméthylamine dans le Traitement du Rhumatisme aigu,' Paris, 1873. R. Adams, 'A Treatise on Rheumatic Gout, or Chronic Rheumatić Arthritis of all the Joints,' London and Dublin, 1873. B. Schmidt, "Ein Fall von Ostitis Deformans" (man, æt. 56), 'Arch. d. Heilk.,' xv, 81. Tillmanns, "Beträchtliche Arthritis Deformans nach einer ungeheilt gebliebenen Querfractur des Olecranons," ib. ib., 361.

## *Purpura, Scurvy, Hæmophilia.*

J. Krugula writes ('Wien. Med. Woch.,' 1873, No. 27) on "The Etiology of Scurvy." He is convinced that it should be classed among the infectious diseases, by the side of intermittent and "typhus" fevers. Among other grounds he gives for his belief he asserts that the affection predominates in regions which are well known to be breeding places of the infectious diseases, often occurring simultaneously with them; that it repeatedly breaks out after the use of bad meat or water, after living in atmospheres loaded with the products of decomposition, and in circumstances which all stand in direct relation to the progess of putrefaction. Whatever be the specific poison, as yet unknown, its entrance into the system is by the mucous membrane of the respiratory or digestive passages. The question whether scurvy is a primary blood-disease or not cannot be settled on our present grounds of knowledge.

H. Molliere ("Recherches cliniques sur la Nosographie du Purpura hæmorrhagique et des Affections pétéchiales," 'Lyon Méd.,' xiv, 331) has collected ten cases, for the most part occurring under his own observation, in which purpura was combined with the most varying conditions, standing in no relation whatever to one another.

C. Kuschel, 'Ueber das Vorkommen von Scorbut seit 1860 in historisch-geographischer und ätiologischer Hinsicht,' Berlin. W. Legg, "The Urine in Hæmophilia," 'Brit. Med. Journ.,' 1873, i, 141. T. Wellesley, "Case of Hæmorrhage into the Peritoneal Cavity," ib. ib., 33. G. Lewis, "Notes on Purpura amongst the Children of the Poorer Classes in Liverpool," ib., 1874, i, 375. W. Williams, "The alleged Occurrence of Purpura in Children," ib. ib., i, 512. J. W. Allan, "Case of Purpura" (girl, æt. 20), 'Lancet,' 1873, ii, 336. M'Dowell, "Case of Purpura" (girl, æt. 20), ib. ib., ii, 557. C. Higgens, "Notes on two cases of Hæmorrhagic Diathesis," ib., 1874, i, 729. Lavies, "Purpura Hæmorrhagica" (man, æt. 60), 'Med. Times and Gaz.,' 1873, ii, 242. T. Inmann, "Purpura Hæmorrhagica" (two cases, females), ib. ib., ii, 268. W. H. Jalland, "Scurvy in a Child ten months old," ib. ib., i, 248. B. W. Richardson, "Forms of Disease included under the term 'Purpura Hæmorrhagica,'" ib. ib., ii, 597. W. H. Mather, "Case of supposed Scurvy in a Nursing Child" (æt. 9 months), 'New York Med. Journ.,' xvii, 102.

## *Rickets.*

H. Urtel ('Ueber Rachitis congenita,' Halle, 1873, 48) gives minute particulars of a case of congenital rickets in a hydrocephalic child,

which died soon after its birth. The epiphysial cartilages were enormously swollen and of a jelly-like consistence. A longitudinal section of the tibia showed that the cartilage was homogeneous, without a trace of bone-nuclei. The shaft had a moderately strong and hard external layer, from which several small compact stripes ran into the spongy substance. The limit of ossification between cartilage and bone was very sharply marked, but the characteristic layers of cartilage-cells along the border of ossification were absent. The small cells found in other parts of the cartilage had more the appearance of connective-tissue-corpuscles, and were further on lost in a layer of fibrous tissue between the cartilage and the bone, which was continuous with the inner layer of the periosteum; this was thinner in one place than another, and in other spots entirely absent, so that bone and cartilage lay in direct contact; but even in this situation the layers of cartilage-cells were wanting. The centrum of the shaft showed cretified cartilage with cells like large bladders. The periosteum was normal. The author points out the differences between this case and one of true rickets.

P. Bouland ("Recherches anatomiques sur le Rachitisme de la Colonne vertébrale," 'Compt. Rend.,' lxxviii, 564) concludes from measurements he has taken that curvature of the spine is not always due, as is frequently said to be the case, to a relaxed state of the ligaments. His observations were made on children between the ages of two and sixteen months, the majority, though slight, being in the female sex. He thinks that the conditions found in rickets may be referred to three principal types, according as the inter-articular cartilages alone, these and the vertebræ, and both cartilages and vertebræ, together with the ligaments, are involved. Increase in the proliferation of the cartilage-cells is the most marked microscopic appearance.

Z. J. Strelzof, "Rachitis," 'Untersuch. aus dem Path. Inst. zu Zurich,' 1872, pp. 52. F. Steudener, "Ein Fall von schwerer Rachitis" (child, æt. 1¼, autopsy), 'Deut. Zeitschr. f. Chir.,' 1873, iv, x, 90 (with plate). Geissler, "Plötzliche Erblindung bei Hydrocephalus Chronicus, Sectionsbefund" (boy, æt. 5¼), 'Arch. d. Heilk.,' xv, 567. P. Bouley, 'De l'Ostéomalacie chez les Hommes et les Animaux domestiques,' Paris, 1874, pp. 132. L. Tripier, "Recherches sur la Production artificielle du Rachitisme," 'Arch. de Phys.,' Ser. 2, i, 108. "Enlargement of the Spleen from Rickets simulating Malignant Disease of the Kidney," 'Lancet,' 1873, ii, 6 (see abstract of this paper under "Spleen"). Cayley and Sansom, "Hydrocephalus, Paracentesis, relief, sudden death from Diarrhœa" (boy, æt. 3 months), 'Med. Times and Gaz.,' 1874, i, 671.

## *Addison's Disease.*

Heschl, in publishing ('Wien. Med. Woch.,' 1873, No. 33) three cases of Addison's disease, writes on its symptoms and etiology. The microscopical examination of the skin and supra-renal capsules revealed nothing new. The symptoms he arranges under three heads—(*a*) Degeneration of the supra-renal bodies, shown in various degrees of cheesiness or more or less extensive cretification. (*b*) Various pigmentations of the skin and mucous membranes, consisting in a deposit of pigment in the cells of the epidermis, and very rarely in those of the corium. (*c*) Various symptoms referred to the nervous system, blood, and general health. According to the different

combinations of these three sets of symptoms he recognises various types of the affection—(1) cases in which all three occur together; (2) a less numerous series of cases in which *a* and *c* occur; (3) an even less numerous series in which *b* and *c* occur; (4) cases in which *a* occurs without the other two, but in combination with other diseases; (5) cases in which *b* occurs alone; (6) *a* and *b* never occur without *c*; nor (7) does the last occur alone. The cases grouped under the first division are the typical cases of Addison's disease, with which those under the second stand in very close relation. Heschel is very sceptical as to the occurrence of bronzed skin accompanied by cachexia, but without disease of the supra-renal bodies; he holds that the latter are frequently affected without either cachexia or bronzing, and concludes with Rossbach that bronzing alone may be noticed in the course of other affections, such as phthisis or uterine disturbances. The common cause of the three chief symptoms he would look for in something outside them all, and finds it in a tuberculosis due to certain local changes, especially in the supra-renal bodies, accompanied by complicated symptoms and very well-marked constitutional signs.

A. Laveran gives ('Gaz. Hebd.,' 1873, 606) two cases of Addison's disease without bronzing; the appearances found in the supra-renal bodies agree with the usual descriptions. He concludes that pigmentation of the skin is not a constant symptom of Addison's disease, and that in its absence the diagnosis rests on the cachectic condition into which the patients sink, and the obstinate vomiting; for this reason he would retain the original name of the affection in preference to "Bronze-disease."

Aerts, "Dégénerescence tuberculeuse des Capsules sur-rénales" (woman, æt. 33, bronzed skin, pigmentary patches on buccal mucous membrane, usual symptoms, chronic peritonitis, "grey tubercles" in lower lobes of lungs, cheesy phthisis), 'Presse Méd. Belge,' 1874, 34. S. Wilks, "Supra-renal Capsules from a case of Addison's Disease" (woman, æt. 28), 'Path. Soc. Trans.,' xxiv, 221. E. H. Greenhow, "Cases of Addison's Disease" (four, in men, æt. 25, 20, 32, 40, with autopsies), ib. ib., 224. Id., "Cancer of the Supra-renal Capsules" (man, æt. 56, pancreas and pylorus involved, remarks on this and four preceding cases), ib. ib., 238. J. S. Ferris, "Case of Addison's Disease, with post-mortem examination" (woman, æt. 47), 'Brit. Med. Journ.,' 1874, ii, 553.

## *Alcoholism.*

W. H. Dickinson ('Med.-Chir. Trans.,' lvi, 27) contrasts two series of post-mortem examinations, each numbering 149 persons, the first comprising those whose trade it had been to make, sell, store, or convey alcoholic liquor; the second those of the same sex, of similar age, and belonging to the same stratum of society, but not employed about liquor, nor known to have had delirium tremens, or to have been of intemperate habits. Workers in lead were excluded. He is led to the following conclusions. Alcohol shortens life; "to trade in liquor costs 3½ years." It causes fatty infiltration and fibroid encroachment; it engenders tubercle, encourages suppuration, and retards healing; it produces untimely atheroma, invites hæmorrhage, and anticipates age. The most constant fatty change is most noticeable in the liver, in the heart, and the kidney, the first organ suffering more than any other,

not only from fatty impregnation, but also from cirrhosis. The mischief in the lung takes apparently every shape of phthisis. The kidneys, though undergoing congestive enlargement, fatty and fibroid changes, do not suffer commensurately with the blood-vessels, or with the same frequency as other viscera. In addition to local effects which are part and parcel of the general poisoning, alcohol occasions a general shrinking of the brain, as evinced by the accumulation of fluid in spaces once filled by cerebral substance. In a word, alcohol is the genius of degeneration.

Magnan ('Gaz. Heb.,' 1873, 355) points out that the temperature is most important in diagnosing cases of acute alcoholism from its transient form. In serious cases it rises from 100·4° to 102·2° F. on the first day, going further to 104° and 107·5°, in one case reaching 110° before death. He looks upon muscular tremors produced on pressure and percussion, and during sleep, as very unfavourable signs.

The same author ('Arch. de Phys.,' v, 115) has made experiments upon various animals with alcohol and absinth, and writes an interesting paper containing full details, including the pathological changes found, the latter scarcely differing from those described in the above paper of Dickinson's. The immediate action of alcohol, given in a sufficiently large dose, displays itself in all animals by intoxication; in the dog its prolonged action produces symptoms which become increasingly more marked, and show the gradual onset and evolution of alcoholism—irritability and increased sensibility to external excitements, illusions and hallucinations, with, at the end of the first month, daily and nightly delirium, and in the course of the second month general tremblings. He has never found it give rise to an epileptic attack. On the other hand, the action of absinth is distinct from that of alcohol, rather resembling those produced by belladonna or haschisch. Small doses cause giddiness and muscular tremors of the anterior portion of the body, especially of the head and neck, in all animals (dogs, cats, rabbits, guinea-pigs, rats, birds) to which it was administered; full doses brought on attacks of epilepsy and delirium. He enlarges on facts which, in his experiments with absinth, seem to demonstrate the independence of the brain and spinal cord, and even of different portions of the latter in epileptic attacks produced by this poison.

Knecht, "Tod durch acute Alkoholvergiftung" (boy, æt. 5, after drinking about half a glass of brandy; no autopsy allowed), 'Arch. d. Heilk.,' xv, 82. E. V. de Warker, "The Restorative Force of Nature in Delirium Tremens," 'New York Med. Journ.,' xviii, 158. W. S. Schenck, "The use of Ipecac. in Delirium Tremens," ib., 413. E. Crisp, "Diseased Livers and Kidneys from the inordinate use of Alcohol" (he believes life is thus shortened eight or ten years), 'Path. Soc. Trans.,' xxiv, 265. "Influence de l'Alcoolisme sur divers groupes d'affections cutanées," 'Gaz. des Hôp.,' 1874, 195. Lolliot, "De l'Alcoolisme comme cause de la paralysie générale," ib., 1873, 817. Magnan, "De l'hémianæsthésie de la sensibilité générale et des sens dans l'Alcoolisme chronique," 'Gaz. Hebd.,' 1873, 729. Crocq, "Méningo-encéphalite chronique d'origine alcoolique, autopsie" (woman, æt. 29), 'Presse Méd. Belge,' 1874, 207. Carpentier, "Alcoolisme chronique, épilepsie, mort, autopsie, hémorrhagie méningée considérable, méningite, hépatite, gastro-duodénite chroniques, dégénérescence graisseuse du cœur et des reins" (man, æt. 52), ib. ib., 73. Magnan, "Recherches sur les signes cliniques du Délirium tremens fébrile," 'Gaz. Méd.,' 1873, 323. Jolly, "Des diverses formes du Délire alcoolique et de leur traitement," 'Bull. de l'Acad. de Méd.,'

1873, 247. Decaisne, "Sur l'usage du Vermouth dans la consommation," 'Compt. Rend.,' lxxvi, 669. J. Ross, "On the Action of Alcohol," 'Brit. Med. Journ.,' 1873, ii, 395. F. E. Anstie, "Remarks on certain recent papers on the Action of Alcohol," 'Practitioner,' 1873, 359. A. H. M'Clintock, "Remarks on the Semeiology of Chronic Alcoholism," 'Dubl. Journ.,' lv, 339. F. I. de Lisle, "Treatment of Delirium Tremens and allied diseases by large doses of Digitalis," 'Med. Times and Gaz.,' 1873, ii, 321. Martyn, "Delirium Tremens, a violent attack rapidly subdued by Chloral aided by Chloroform," ib. ib., 325. Chenery, "Tincture of Digitalis and Chloral-hydrate in Delirium Tremens," 'Bost. Med. Surg. Journ.,' lxxxix, 377. J. Russell, "Remarks on Alcoholism from a Clinical Point of View," 'Brit. Med. Journ.,' 1874, ii, 607. H. Sutherland, "Alcoholism in Private Practice," ib. ib., 610.

## *Syphilis.*

Lancereaux ('Gaz. Méd.,' 1873, 363) recognises two pathological forms of disease which the liver undergoes in syphilis,—viz. diffused syphilitic hepatitis, analogous to cirrhosis, and circumscribed or gummy hepatitis. In the first case there is increased growth, followed by contraction of the connective tissue of the walls of the capillaries, as well as that of the organ generally, while the microscope reveals atrophy and fatty change of the connective-tissue-cells, amyloid degeneration of the capillary walls, and either atrophy or increase of size with multiplied oil-cells of the liver-cells. In the case of gummy hepatitis the nodules are found to have a whitish-yellow central and a grey fibrous-looking peripheral appearance. The paper contains remarks as to the differential diagnosis of the disease from ordinary cirrhosis, "tubercle," cancer, &c., of the liver, mainly resting on the history of the case; descriptions of the symptoms, gathered especially from the writer's own experience; and advice as to treatment, essentially a mercurial one.

The same author ('Arch. Gén. de Méd.,' xxii, 42) writes on the syphilitic affections of the circulatory organs. The valves of the heart are generally uninjured, while there may be a circumscribed or diffuse form of myocarditis. A syphilitic form of arteritis attacks by preference the carotids and cerebral arteries, showing itself in thickening of their walls and narrowing of their calibre, with, in many instances, formation of aneurisms. In these cases he expects benefit from the use of iodide of potassium.

In another paper ('Gaz. Hebd.,' 1873, 506) he discusses syphilitic meningitis and encephalitis, finding, as in the above, diffuse and circumscribed forms of both. There is scarcely anything new, either in the symptoms noticed or the descriptions given.

A. Weil ('Centralbl.,' 1874, 177) states that, in opposition to what is generally observed, he has been able, by percussion and palpation, to make out extensive enlargement of the spleen in three cases during the existence of the primary induration. Two of the patients were admitted into hospital soon after infection, and from three to four weeks before the first appearance of the exanthem; the third case had presented syphilitic maculæ for four weeks. The enlargement of the spleen was very marked on admission in all three, and under anti-syphilitic treatment completely disappeared in from five to ten weeks. In the absence of any other cause he refers the symptoms to syphilis,

and considers it to be due to hyperæmia and increase of the cells of the pulp, consequent, as in intermittent fever and the acute exanthemata, on general blood-poisoning.

J. Eisenschütz ('Wien. Med. Woch.,' 1873, No. 48) finds enlargement of the spleen to be a marked symptom, among others, of latent syphilis in children, the maximum period of latency being from the first six to twelve weeks of life.

J. Hutchinson prints ('Med.-Chir. Trans.,' lvi, 189) a second report on the communication of syphilis in the practice of vaccination. He gives a third and fourth series, each consisting of one case. The third is that of a married and respectable man, æt. 46, who came under the writer's care with acute iritis. He presented a copious dusky rash and symmetrical ulcers on the tonsils. A former syphilis was denied, nor were sores found on the genitals. On one arm were open ulcers as large as shillings, covered with scabs, and with dusky indurated borders. There was an indolent swelling in his armpit. He had been vaccinated three months before, being in perfect health, and the punctures went on favourably till the fourth week, when they became again inflamed and ulcerated. About a fortnight later the eruption appeared, and at the end of another month the iritis. About a dozen other persons vaccinated from the same child showed no peculiar symptoms. The child itself was the third and only living one, and the only syphilitic sign it presented was the broad and sunken bridge of its nose. The fourth case is that of a lady, æt. 46, who consulted the writer about a urethral growth; she also presented the stains of a syphilitic rash, which she stated to have broken out about eight weeks after vaccination, one of the punctures, as in the third case, having become inflamed again about the fourth week. The eruption was followed later by iritis. Her two daughters, vaccinated at the same time from the same child, were never affected. The child had had syphilitic condylomata, snuffles, and a slight skin rash at the time of dentition. After stating these cases, the writer arranges his remarks on the four series under separate headings. He thinks we must believe that the specific poison of syphilis is either not contained in the vaccine lymph at all or is not equally diffused through it: and he holds that the most probable explanation of this is the supposition that it is necessary to convey some of the cell-elements of the blood in order to convey syphilis, and this may be done without making the vesicle bleed. The course of events is as follows: if the syphilitic virus and the vaccine virus be implanted at one and the same time, and the patient be susceptible of vaccination, the vesicle may pass through all its stages in the most characteristic manner; then, after the healing of the vaccination-sore, and at the end of about a month from the inoculation, the syphilitic virus begins to show its effects, and the scar becomes irritable, inflames, and indurates. In some exceptional cases the vaccination-sore never heals, and the pus-scab somewhat conceals the specific changes which subsequently occur. The vaccination-chancre begins as a little red, firm, glossy tubercle, which gradually increases in size and becomes harder. At the end of a fortnight, or earlier, it usually ulcerates and presents a sore remarkable for its small amount of secre-

tion, and for the hardness of its base and edges. The cases in which no mercury was given show that it may last for some months before it heals. After healing it leaves a dusky brown scar, very different from that of vaccination. The paper concludes with remarks as to its treatment, and warning to the vaccinator as to his choice of vaccinifers.

T. Bryant gives ('Med. Times and Gaz.,' 1874, i, 476) two cases illustrating the occurrence in children of syphilis inherited from the fathers, the mothers not being affected.

Günzburg ('Wien. Med. Woch.,' 1873, No. 19) discusses the mortality of artificially fed syphilitic children, and the frequency of infection on the part of dry nurses, as compared with that on the part of mothers who suckle their own syphilitic offspring.

O. Bollinger ('Virch. Arch.,' lix, 341) has noticed in hares certain nodules of various size seated chiefly in the genital organs, which he thinks are due to syphilis. Microscopically they consist of a fatty debris in the centre, with round and giant cells in a reticulum at their circumference.

E. Bassereau, 'Origine de la Syphilis,' Paris, 1873, pp. 49. A. Fournier, 'Leçons sur la Syphilis, étudiée plus particulièrement chez la femme,' Paris, 1873, pp. 1108. Id., "La Syphilis chez la femme, troubles nerveux de la période secondaire" (contin. from year before), 'Gaz. Hebd.,' 1873, 6. Verneuil, "Lésions Syphilitiques tertiaires des bourses séreuses sous-cutanées et tendineuses, hydrarthroses tertiaires," ib., 22. Mauriac, "Étude clinique sur l'influence curative de l'érysipèle dans la Syphilis," 'Gaz. des Hôp.,' 1871, 305. Langlebert, "Des cas dans lesquels une Syphilis ancienne doit être considérée comme un obstacle au mariage," ib., 1050. Brouardel, "De quelques-uns des accidents Syphilitiques qui peuvent amener la mort," ib., 1874, 305. Mauriac, "Syphilis gommeuse, précoce et réfractaire à l'iodure de potassium," ib., 529. Id., "Des diverses espèces de maladies vénériennes," ib., 642. Lancereaux, "Des Arthrites syphilitiques," 'Union Méd.,' xvi, 153. Guyot, "Du resserrement de la machoire du à la Syphilis; myosite du masséter, tumeurs gommeuses de la joue," ib., 609. Renault, "Syphilis à marche tout-à-fait anormale," ib., 873. Rathery, "Note sur le diagnostic des éruptions arsénicales et des éruptions syphilitiques," ib., xvii, 326. Martin, "Études sur les Végétations," 'Ann. de Derm. et Syph.,' iv, 161. Vidal, "Contribution à l'étude de la Syphilis constitutionelle ayant pour accident le chancre mou," ib., 81. Id., on same ("le chancre mou compliqué de l'adénite suppurée"), ib., 180. Bourdon, "Gommes inguinales syphilitiques," ib., 95. Verneuil, "Adenopathie inguinale tertiaire, lymphangiome gommeux," ib., 100. Lewin, "Ueber Infectio sine coitu," 'Berl. Klin. Woch.,' 1873, 253. Schuster, "Ueber Fiebercomplicationen bei Syphilitischen," 'Arch. f. Derm. u. Syph.,' v, 283. S. A. Lane, "Abstract of a lecture on Tertiary Syphilis and Syphilitic Cachexia," 'Lancet,' 1873, ii, 118. Steele, "Latent Syphilis preventing union of fractured tibia for upwards of seven months; rapid recovery under specific treatment," ib. ib., 627. De Méric, "On some peculiar modes of transmission of Syphilis in married life," 'Brit. Med. Journ.,' 1873, i, 104. Oliver, "Modified Syphilis," ib. ib., 609. Bradley, "Three propositions on the classification of Syphilis, and on the nature and treatment of the tertiary form of the disease" (with mercury), 'Med. Times and Gaz.,' 1874, i, 613. Macdonald, "Case of Secondary Syphilis communicated by an infant to its nurse," 'Edin. Journ.,' xix, 30. Morgan, "On Dactylitis Syphilitica," 'Dubl. Journ.,' lv, 354. T. C. Smith, "Case of Dactylitis Syphilitica" (girl, æt. 19), 'New York Med. Journ.,' xix, 59. Taylor, "On the question of the Transmission of Syphilitic Contagion in the rite of circumcision," ib., xviii, 561 (and cf. ib., 160). Mann, "A case of Syphilitic Laryngitis, &c." (man, æt. 41), ib., 621.

Kraus, "Gehirnsyphilis," 'Allg. Wien. Ztg.,' 1873, 156. Simon, "Zur Casuistick der cerebralen Syphilis," 'Arch. f. Derm. u. Syph.,' v, 384. Petrow, "Ueber

die Veränderungen des Sympathischer Nervensystems bei Constitutioneller Syphilis," 'Virch. Arch.,' lvii, 121. Deshayes, "Troubles nerveux syphilitiques chez l'homme, nevralgies," 'Gaz. Hebd.,' 1873, 767. Charcot and Gombault, "Note sur un cas de lésions disséminécs des centres nerveux observées chez un femme syphilitique" (æt. 40), 'Arch. de Phys.,' v, 141. Buzzard, "On Paralysis, Convulsions, and other Nervous Affections in Syphilitic Subjects," 'Lancet,' 1873, i, 265. Broadbent, "Syphilitic Affections of the Nervous System," ib., 1874, i, 43 (and 'Brit. Med. Journ.,' 1874, i, 37). Anstie, "Case of Syphilitic Paralysis, with unusually rapid wasting and Repair of Muscles," 'Clin. Soc. Trans.,' vi, 15. Poncet, "Observation de Méningite syphilitique," 'Ann. de Derm. et Syph.,' iv, 185. Russell, "Constitutional Syphilis, Chronic General Meningitis; later, formation of a nodule compressing the left middle cerebral artery, causing ataxy and defective speech, at first in fits, then permanently; slight and temporary paralysis of the face, softening near the corpus striatum" (man, æt. 37), 'Med. Times and Gaz.,' 1873, ii, 464. Cholmeley, "Syphilitic Paralysis with marked Muscular Wasting," 'Brit. Med. Journ.,' 1873, i, 172. Bradley, "Syphilitic Gummatous Tumour of the Brain, with remarks," ib. ib., 643. J. H. Jackson, "On Palsy of the Vocal Cord from Intracranial Syphilis," ib. ib., 86. Dixon, "Recurrent Syphilitic Keratitis," ib. ib., 223. Oglesby, "Embolism of a branch of the Central Artery of the Retina, Paralysis of outer half of the Retina, Constitutional Syphilis," 'Lancet,' 1874, i, 476. Fournier, "Des Ophthalmies profondes de la Syphilis dans la période secondaire," 'Ann. de Derm. et Syph.,' iv, 2. Baréty, "Cachexie Syphilitique; Irido-cyclite avec tumeur gommeuse de l'iris et hernie choroïdienne de l'œil gauche; abolition presque complète de la sensation de la lumière, guérison, &c.," ib., 44. Sidlo, "Kehlkopfaffectionen im Verlaufe von Syphilis und Lungenaffectionen," 'Wien. Med. Woch.,' 1873, No. 29. Klemm, "Die Syphilitischen Geschwüre am Kehldeckel," 'Deut. Klin.,' 1873, 175. Schwimmer, "Ein Fall von Enteritis Syphilitica," 'Arch. f. Derm. u. Syph.,' v, 247. McNalty, "Case of Syphilitic Gummata in the Heart," 'Med. Times and Gaz.,' 1873, i, 624. Herz, "Ein Fall von Aneurysma und Pneumonia Syphilitica" (woman, æt. 34, autopsy), 'Virch. Arch.,' lvii, 421. E. H. Greenhow, "Case of Muscular Tumours and of Phlebitis, with plugging of the superficial veins of both legs, in a patient the subject of Constitutional Syphilis" (man, æt. 33), 'Clin. Soc. Trans.,' vi, 143. Buzzard, "A case of double Facial Paralysis, with paralysis of four extremities; general anæsthesia; imperfect paralysis of respiration and deglutition; paresis of the bladder; recovery under antisyphilitic treatment," ib., vii, 75.

v. Sigmund, "Ueber den Quecksilbersublimat bei Syphilisformen," 'Wien. Med. Woch.,' 1873, No. 15. H. Zeissl, "Zur Therapie der Syphilis und einigen ihrer localen Erscheinungen," ib., No. 46. Créquy, "De l'emploi des pastilles composées de protoiodure d'hydrargyre et de chlorate de potasse dans la Syphilis," 'Gaz. Méd.,' 1873, 173. L. Brière, "Du Diagnostic de quelques Syphilides ulcéreuses tardives et de leur Traitement," 'Gaz. des Hôp.,' 1873, 857. E. Lanceraux, "Du Traitement de la Syphilis acquise," 'Bull. Gén. de Thérap.,' t. 85, p. 61. T. K. Spender, "A Clinical Note on the Treatment of Syphilis," 'Lancet,' 1874, i, 583. J. Hutchinson, "When and how to use Mercury in Syphilis," ib. ib., 86. Id., on same, 'Brit. Med. Journ.,' 1874, i, 108. Id., "The Treatment of Syphilis," ib. ib., 266. J. R. Lane, "On the Modern Treatment of Syphilis," ib., ii, 729.

Charrin, "Note sur un cas d'altération du tissu osseux chez un Nouveau-né syphilitique, avec pseudo-paralysie du membre supérieur gauche," 'Gaz. Méd.,' 1873, 424. Parrot, "Deux cas de Syphilis héréditaire," ib., 478. Lepileur, "Accidents épileptiformes de nature syphilitique chez un Nouveau-né," 'Gaz. des Hôp.,' 1873, 2. Gingeot, "A propos de la Syphilis Héréditaire," ib., 915. Gailleton, "La Mortalité des Nouveau-nés syphilitiques," 'Lyon Méd.,' xv, 105. E. Lancereaux, "Des Affections viscerales de la Syphilis héréditaire," 'Ann. de Derm. et Syph.,' iv, 321. F. R. Sturgis, "Etiology of Hereditary Syphilis; review of the cases where the paternal influence is acknowledged, but the mother is reported free from disease," pt. ii (cf. vol. xiv), 'New York Med. Journ.,' xviii, 1. Bulkley, "Rare cases of Congenital Syphilis," ib., xix, 497. Ballard, "What are the signs of Congenital Syphilis?" 'Lancet,' 1873, i, 736. Sparks, "Ulcerating Syphilide in a child twelve years old," ib., 1874, i, 869. Althaus, "Case of Infantile Syphilitic Epilepsy" (boy, æt. 9, recovery), 'Med Times and Gaz.,' 1874, i, 398.

G. G. Gascoyen, "Vaccino-Syphilis," 'Lancet,' 1873, i, 219. Robinson, on same, ib. ib., i, 321. Fox, "Alleged Vaccinal Syphilis," ib. ib., ii, 659.

*Animal Parasites.*

C. W. F. Udhe gives further tables of the number of swine killed in the principality of Brunswick, and those found to be affected with trichinæ. From Easter 1869 to 1871 ('Virch. Arch.,' lvii, 528), 12 out of 183,543 were found to contain these parasites, *i.e.* 1 in 15,295; between Easter 1871 and 1872 (ib., lviii, 325), 7 out of 93,707 were so affected; and between Easter 1872 and 1873, 19 out of 92,605 (ib., lix, 160).

A. Petri (ib., lvii, 296) also gives another table of all (6555) the swine killed at Rostock during 1872. Trichinæ were found in none. He remarks that of 622 sides of bacon imported thither from America 12 contained the parasites. Of 5836 killed during 1873, in the same place (ib., lix, 538), 3 only were infested by trichinæ.

In the 'Fourth Annual Report of the Board of Health of Massachusetts' (1873), p. 454, is an account of the occurrence of trichina disease in a family in Framingham, in that state, in December, 1872. The sausages (made from a pig, raised with care by the owner) had been frozen, and were very slightly cooked, so that the heat had not penetrated the inner parts. The owner, his wife, and a son of fifteen, after eating them, were all affected with swelling of the eyelids, followed by swelling of the whole face, and, a few days later, swelling of the legs and feet, violent pains in the legs, arms, shoulders, and back, and, in the case of the first patient, diarrhœa. Specimens of the salted, unsmoked ham were found to contain very numerous unencapsuled trichinæ. Three cases in which symptoms of trichiniasis occurred after eating half-cooked pork are given in the fifth annual report of the same board (p. 523).

Klob ('London Med. Rec.,' 1874, 444) found the muscles of a man æt. 73 crammed with trichinæ, most of them in the calcified condition. The patient had died from marasmus.

Knoch ('Virch. Arch.,' lix, 528) relates the occurrence of trichinæ in a family of seven persons in St. Petersburg. The ham and sausages of which they had eaten gave no decided results on examination, but portions of muscle taken from the arm of one of the sufferers showed the parasites already encapsuled.

S. Coupland showed ('Path. Soc. Trans.,' xxv, 262) specimens of muscles from a case of trichiniasis. The patient, a man, æt. 23, had been admitted into hospital for bronchitis and phthisis, of which he died in a fortnight. All the voluntary muscles, even those of the eyeball and the tensor tympani, were most thickly crowded with encysted trichinæ, the cysts being all calcified. One grain in weight of a muscle of the thigh was found to contain 180 of the cysts. It is most probable that the man contracted the disease nine years before, in New York, as during his stay there for eighteen months he had an attack of "enteric fever," of which he almost died.

C. Westphal ('Berl. Klin. Woch.,' 1873, 205) records the following:—A boy, aged 17, was attacked, at the end of May, 1872, with

headache, vomiting, and photophobia. The sight of both eyes, especially of the right, was gradually impaired, the right eye becoming also more and more prominent. With this there was some weakness of the extremities on the left side. At the beginning of November, 1872, the right temple presented a gradually increasing prominence, with transient œdema of the eyelid and conjunctiva of the same side, and incision was followed by the evacuation of about ninety echinococcus-cysts, varying in size from a fist to a small pea. The patient gradually recovered, and the paralysis of the left side disappeared.

Meschede ('Deut. Klin.,' 1873, 295) records a case in which cysticerci were found in the cortical substance of the cerebrum, without having produced any cerebral symptoms during life. The patient was a man, aged 38. The microscope showed degeneration of the ganglia in the immediate neighbourhood of the cysts, which were three in number, and about the size of peas.

Mosler, writing ('Virch. Arch.,' lvii, 529) on the length of life and retention in the body of bothriocephalus latus, gives two cases of its occurrence in men, aged 36 and 24. The first probably got the worm in St. Petersburg, in 1859, and in spite of the profuse diarrhœa of typhoid and the high temperature of intermittent fever through which he passed, and in spite also of various "worm-cures," did not get rid of it till 1873, fourteen years later. The second patient carried the worm, which he had probably caught in French Switzerland, for six years.

E. B. Gray and H. M. Tuckwell give ('Brit. Med. Journ.,' 1874, i, 682) three cases in which round worms proved a veritable plague. A boy, æt. 6, passed between March 4 and 21 thirty-two of these worms *per anum*; a woman, æt. 48, passed, *per anum*, thirty-one, and vomited five; and a woman, æt. 47, still under treatment, has vomited during the eight months preceding this note (May, 1874) twenty-four round worms, and thinks it likely that she may have passed others by stool. Her husband has also vomited these worms, while all her children, seven in number, are frequently in the habit of either passing or vomiting them, one having passed four after a dose of senna tea the previous week. The mother herself has, after santonine, which was given in all the cases, passed, since April 11, twenty-one round worms.

Haussmann, 'Die Parasiten der Brustdrüse' (animal and vegetable), Berlin, 1874, pp. 80. S. Maj, "Sulla Verminazione," 'Gaz. Med. Lomb.,' 1873, 211. J. L. Clarke, "Severe Nervous Symptoms from Ascarides" (female, æt. 34), 'Brit. Med. Journ.,' 1874, i, 835. F. H. Welch, "On a species of Filaria found in the interior of the vascular system of a dog; relative to the Filaria in the blood, and the ova and larvæ of a nematoid worm in the urine, of man" (with woodcuts), 'Lancet,' 1873, i, 336 (and see ib. ib., 905). D. D. Cunningham, "The Hæmatozoon; notes on its discovery and its relation to the Canine Filaria" (with woodcut), ib. ib., 835. T. S. Cobbold, "Hæmatozoa," ib. ib., 462. Id., "On the Treatment of Tapeworm, with illustrative cases," ib., 1874, ii, 793. Id., "Remarks on eighty cases of Tapeworm," ib., i, 793. Id., "On Treatment," &c., 'Brit. Med. Journ.,' 1874, i, 3, 103, 167. Cullingworth, "Abnormal Tapeworm (? *Tænia lophosoma*)," ib. ib., i, 488. Id., "Notes of a remarkable specimen of Tapeworm (*Tænia lophosoma*, Cobbold)," 'Med. Times and Gaz.,' 1873, ii, 660. Schuster, "Das Aachenen Thermalwasser als Vorbreitungsmittel zur Beseitigung der Tänien," 'Arch. de Heilk.,' xiv, 570. Brouardel, "Cure définitive du Tænia par la méthode de M. Laboulbène," 'Gaz. des Hôp.,' 1874, 123. "Traitement de la Ténia par les sémences de potiron ou Cucurbita

pepo," 'Bull. Gén. de Thérap.,' t. 85, p. 89. T. E. Clark, "Treatment of Round-worm," 'Brit. Med. Journ.,' 1874, i, 707. "Guinea-worm," 'Med. Times and Gaz.,' 1874, i, 17. Bird, "On the Treatment of Hydatid Cysts in the Viscera," ib., 1873, ii, 164. Habershon, "Some cases of Hydatid Disease," 'Guy's Hosp. Rep.,' xviii, 373. L. Labbé, "Case of Hydatids of the Humerus," 'Lancet,' 1874, ii, 156. R. Farquharson, "On the Grouse Disease," ib. ib., 342. W. Cayley, "Specimens of the Grouse Disease," 'Path. Soc. Trans.,' xxv, 278. E. Crisp, "Grouse Disease," ib., 283. (And see under the various organs, "Brain," "Liver," &c.)

### *Vegetable Parasites.*

Salisbury, "Description of two new Algoid Vegetations, one of which appears to be the specific cause of Syphilis and the other of Gonorrhœa," 'Zeitsch. f. Parasitenk.,' iv, 33. Id., "Vegetations found in the blood of patients suffering with Erysipelas," ib. ib., 1. Hallier, "Die Parasiten der Infectionskrankheiten," ib. ib., 56. Conche, "Note pour servir à l'étude du développement du Favus et du Trichophyton chez les Chats," 'Lyon Méd.,' xiv, 289. T. Colan, "Parasitic Vegetable Fungi, and the Diseases induced by them," 'Lancet,' 1874, ii, 755. (And see under "Contagion," "Diphtheria," "Skin Diseases," &c.).

## B. Diseases of the Nervous System.

### *General.*

J. R. Reynolds gives ('Lancet,' 1873, ii, 405) a tentative classification of diseases and derangements of the nervous system. He thinks that for the present they may be placed in eight groups. 1. General or hæmic; those in which the nervous affection is due to some general condition of the body, with frequent relations to the quantity and quality of blood supply, but without any primary alteration in the nutrition of nerve-tissue, and without any direct evidence of changes in the local distribution of blood, resulting from vaso-motor disease. This group includes Anæmia, Spanæmia, Hyperæmia, and Toxæmia, the last varying in its origin, due to pyrexia; alcoholism; mercurial, lead, or chronic arsenical poisoning; uræmia, cholæmia; diabetes; chorea; and syphilis. 2. The second group is referable to exhaustion or fatigue of the nervous system, the result of overwork, the phenomena of which are observed in the temporary paralysis of nerve, muscle, brain, and spinal cord. 3. The derangements included under the third group are due to simple physical impressions, such as may be inflicted by blows, electrical conditions, or exposure to the sun—concussion or physical shock being often accompained by mental and moral commotion, the one intensifying the other. 4. The fourth group contains these multitudinous disturbances of nerve-function which are directly due to localised changes in the blood supply, the result of vaso-motor irregularity, and to a certain extent resembling those of the first group; but they differ in that the arrest of blood-supply is central in the latter and peripheral in this. Into the production of diseases of this group two factors enter—the first is the state, original or acquired, of the vaso-motor centres of nerve-action; the second, the force or continuance of impressions which may be made upon those centres from outside. Sometimes the one element preponderates or exists alone, sometimes the other, but often the two concur. The general characters of these symptoms are suddenness of onset and comparatively short duration,

the symptoms being habitually those of diminished function, followed by increased or altered function; chronicity, or marked tendency to recurrence. 5. This group depends on nutrition-changes in the vascular system generally, in that of the nervous system especially, and in the immediately surrounding tissues. It includes inflammation (whether of nerve, cerebral substance, neurilemma, or meninges), hæmorrhage from disease of a vessel, thrombosis, and embolism. 6. Primary trophic changes in the nerve-centres constitute the next group; these are marked by diminution of proper functional activity—loss of power of voluntary movement, will, mental aptitude, &c.—conditions in the main secondary, and the result of attempts, voluntary, emotional, sensational, or simply physical, to overcome or counteract the discomfort which the loss of power has caused. The writer divides these into two categories, one in which the morbid anatomical condition is known, and the other in which it is as yet but a matter of inference. The first includes wasting and degeneration of the spinal cord and nerves; the second, various forms of palsy, spasms, convulsions, neuralgia, and tetanus (?) 7. The seventh group consists of tumours in different parts of the nervous system, and infiltrations. 8. The last group is made up of affections which have none of the preceding conditions, have no definite names, and, though obviously severe and distressing, rarely cause real anxiety as to their ultimate issue.

In a paper on "Central Galvanization" ('New York Med. Journ.,' xvii, 475) A. D. Rockwell gives cases of melancholia, spasmodic cough, spinal irritation and congestion (? Rep.), chorea, &c., cured by this means, the most thorough form of which is said (p. 479) to be placing one pole on the vertex of the skull and the other on the epigastrium.

W. Detmold (ib., 491) publishes two cases of facial paralysis treated by dividing the paralysed muscles, in which contraction was the prominent feature; and a third case in which there was complete inaction of the zygomatic muscles and the levator anguli oris, and in which a mechanical support, described in the text, was followed by good results.

H. C. Major contributes ('West Riding Asyl. Rep.,' iv, 223) observations on the histology of the morbid brain, in which he comes to the following conclusions. In senile atrophy of the brain the large nerve-cells undergo granulur degeneration, while the smaller ones generally become atrophied, the nuclei of the cells invariably participating in the diseased process. The condition of so-called hypertrophy of the cells (Rutherford, Tuke) depends on a peculiar transformation of some of the larger pyramidal bodies, and is not confined to senile atrophy, being also observed in general paralysis. In both it is of exceptional occurrence. A state of dilatation of the small vessels and capillaries is most commonly observed, with enlargement of the vascular canals and induration of the surrounding cerebral substance. There is no great proliferation of the nuclei of the vessels, the morbid deposits consisting of yellowish granules and hæmatin crystals. The nerve-fibres are in general abnormally coarse and tortuous, and in some instances seem to be broken down at various parts. The most prominent change in the

neuroglia is one of atrophy and degeneration, its corpuscles at first being somewhat increased in number.

F. E. Anstie, "Lectures on Diseases of the Nervous System," 'Lancet,' 1873, i, 39. J. C. Bucknill, "A new Classification of Insanity," ib., ii, 696. J. H. Jackson, "On the Anatomical and Physiological Localisation of Movements in the Brain," ib., i, 84. H. C. Bastian, "Clinical Lectures on the common forms of Paralysis from Brain Disease," ib., 1874, i, 575. S. Wilks, "Remarks on Diseases of the Nervous System, with cases," 'Guy's Hosp. Rep.,' xviii, 123. Radcliffe, "Lectures on Mind, Brain, and Spinal Cord, in certain Morbid Conditions," 'Brit. Med. Journ.,' 1873, i, 333. E. L. Fox, "Certain Pathological Conditions of the Nervous System," ib. ib., ii, 9. D. Duckworth, "Observations on the causes and treatment of certain forms of Sleeplessness," ib. ib., 747. D. Ferrier, "Experimental Researches in Cerebral Physiology and Pathology," 'West Rid. Lun. Asy. Rep.,' iii, 30. J. M. Fothergill, "Cerebral Anæmia," ib., iv, 94. W. T. Benham, "On the Therapeutic value of Cold to the Head," ib. ib., 152. Busch, "Ueber die Wirkungen des Ferrum candens bei einigen Krankheiten des Centralen Nervensystems," 'Berl. Klin. Woch.,' 1873, 441. M. Bernhardt, "Zur Frage von den Functionen einzelner Theile der Hirnrinde des Menschen," 'Arch. f. Psych.,' iv, 480. C. Westphal (remarks on the last paper), ib., 482. M. Roth, "Ueber varicose Hypertrophie der Nervenfasern des Gehirns" (with plate), 'Virch. Arch.,' lviii, 255. O. Obermeier, "Varicöse Axencylinder im Centralnervensystem," ib., 323. R. Arndt, "Ueber Atrophie der Nervenfasern und Ganglienkörper," ib., lix, 511. T. Leber, "Ueber ein eigenthümliches Verhalten der Corpuscula Amylacea im Atrophischen Sehnerven," 'Arch. f. Ophth.,' xviii, 191. W. Cuntz, "Ein Beitrag zur Pathologie der Vasomotorischer Nerven," 'Arch. f. Heilk.,' xv, 63. Bourneville, 'Études Cliniques et Thermométriques sur les Maladies du Système Nerveux,' Paris, 1873, pp. 328. J. A. Liddell, 'A Treatise on Apoplexy, Cerebral Hæmorrhage, Cerebral Embolism, Cerebral Gout, Cerebral Rheumatism, and Épidemic Cerebro-spinal Meningitis,' New York, 1873, pp. 395. B. T. Taylor, "Observations on Vitality, and the Relations of the Nervous System to Disease," 'New York Med. Journ.,' xviii, 373. J. J. Mason, "Direct Galvanisation of the Brain," ib., xvii, 618. A. D. Rockwell, "On the Application of Electricity to the Central Nervous System," ib., xviii, 271. M. Benedikt, "Beiträge zur Neuropathischen und Elektrotherapeutischen Casuistik," 'Deut. Arch.,' xi, 210. H. Mollière, "Étude sur le Vomissement dans les Maladies chroniques du Cerveau (paralysie générale et tumeurs)," 'Lyon Méd.,' xv, 336.

### *Hysteria.*

C. Lasègue writes ('Arch. Gén.,' xxi, 384) on hysterical anorexia, with a view to the recognition of gastric disturbance as one of the forms of hysteria, preferring this name to that of hysterical inanition. He gives an imaginary sketch of the malady in a young girl of from fifteen to twenty, and states that the cases on which his memoir are based are eight in number, all females, the youngest eighteen, the oldest twenty-two. Hysterical symptoms of different kinds were present in all except one. In this case he notices that the mother, among other symptoms, had had two attacks of hysterical hemiplegia. One of his especial desires in writing this paper is to add another proof to the intimate relation which exists between hysteria and hypochondriasis.

W. W. Gull also writes on the same disorder ('Clin. Soc. Trans.,' vii, 22). The subjects of this affection (anorexia nervosa, apepsia hysterica, anorexia hysterica) are mostly of the female sex, between the ages of sixteen and twenty-three, though the writer has occasionally seen it in males of the same age. He gives three cases in females aged seventeen, eighteen, and sixteen years, with woodcuts illustrating the condition of

their faces during and after the period of illness. He believes the want of appetite to be due to a morbid mental state. The treatment required is obviously that which is fitted for people of unsound mind. The patients should be fed at regular intervals, and surrounded by persons who would have moral control over them. He has seen one instance, at least, of a fatal termination to this malady.

Charcot and Gréhant give ('Gaz. Méd.,' 1873, 9) the case of an hysterical woman, æt. 43, in whom inability to pass urine, followed by gradual suppression of that secretion, was succeeded by vomiting. The vomit was examined, and found to contain urea in abundance. They conclude that the elimination of urea by the stomach was sufficient to prevent any accumulation of that substance in the blood.

Fernet ("De l'Oligurie et de l'Anurie hystériques et des vomissements qui les accompagnent," 'Union Méd.,' xv, 566) writes on the same subject, giving a similar case in a girl, æt. 19, in addition to the history of Charcot's and Gréhant's case. He holds that hysterical oliguria demands a separate place among other forms of hysteria, and that it is characterised by a diminution in, or even temporary suppression of, the secretion or excretion of urine, and, secondarily, by the presence of vomited matter in which urea is contained.

D. de B. Hovell, "Hysteria Simplified and Explained," 'Lancet,' 1873, ii, 872. Ogle, "Constant Vomiting and Hæmatemesis removed by the relief of Constipation by Aperients in an Hysterical Girl," ib., 1874, i, 441. Headland, "Case of Hysteria in the Male" (æt. 21), 'Med. Times and Gaz.,' 1873, ii, 325. J. Cavafy, "A case of Male Hysteria" (æt. 37), ib., 1874, ii, 899. J. Castiaux, "Hystérie confirmée chez une femme privée de vagin et d'utérus," 'Gaz. des Hôp.,' 1873, 458. "Revue: Hystéro-épilepsie," ib., 217. Bernutz, "Leçons cliniques sur l'Hystérie," ib., 1874, 83. Mareilh, "Du Traitement de la Chloro-anémie dans les cas d'insuccés du traitement par les toniques et les ferrugineux ordinaires," ib. ib., 331. F. Garnier and Prince, "De la Chlorose en général et du Protobromure de Fer en particulier," 'Lyon Méd.,' xv, 479. T. D. Finucane, "Observations on a case of Aphonia" (? Hysterical), 'Dubl. Journ.,' lv, 422. H. Emminghaus, "Wirkungen der Galvanisation am Kopfe bei Aphonie" (in hysteria), 'Arch. f. Psych.,' iv, 559. J. Paget, "Clinical Lectures on the Nervous Mimicry of Organic Diseases," 'Lancet,' 1873, ii, 511.

## *Chorea.*

M. Tarchetti, "Caso di Corea guarito col bromuro di potassio ad alte dosi" (girl, æt. 14), 'Annal Univ.,' ccxxvi, 76. A. Ritti, "Chorée; Troubles mentaux, hallucinations multiples, guérison" (girl, æt. 19), 'Union Méd.,' xvi, 721. E. Bouchut, "Chorée générale provoquée par un accés de Colére; troubles intellectuels, hydrate de chloral, guérison" (girl, æt. 14), 'Bull. Gén. de Thérap.,' lxxxiv, 128. H. Verdalle, "Guérison de la Chorée pas l'hydrate de chloral" (girl, æt. 11), ib., 219. Brouardel, "De la Chorée," 'Gaz. des Hôp.,' 1874, 689. Id., "De la Chorée" (clinical lecture on case), ib., 713. H. Thompson, "Clinical Lecture on a fatal case of Chorea" (boy, æt. 9, autopsy), 'Med. Times and Gaz.,' 1873, i, 55. J. Pollock, "Case of severe Chorea treated by Inhalation of Chloroform" (girl, æt. 11), 'Lancet,' 1874, i, 871. A. W. Foot, "Unilateral Chorea; Disease of the Corpus Striatum and Optic Thalamus on the side opposite to that affected" (man, æt. 68), 'Dubl. Journ.,' lvi, 342. Pye-Smith, "Analysis of 150 cases of Chorea," 'Guy's Hosp. Rep.,' xix, 329.

## *Epilepsy.*

W. Sander ('Arch. f. Psych.,' iv, 234) relates the case of a man whose

symptoms were somewhat remarkable. At the onset of the affection he had attacks which, though he did not fall or have convulsions, presented a distinctly epileptic character, and during these attacks he was conscious of an unpleasant, "frightful," smell, which he perceived at no other time. Later on supervened general convulsions, impairment of intelligence, loss of sight in the right eye, and death. The autopsy revealed a tumour in the left temporal lobe, extending into the anterior and posterior lobes, involving the sheath of the left optic nerve, and completely surrounding the latter, and protruding through the optic foramen into the orbit to the distance of two or three lines. The anterior perforated lamina was wholly involved, tensely stretched, and of a dull grey colour; the left olfactory tract was free in its anterior half, but in its posterior half completely lost in the growth. The corpus striatum was intact. He gives, in conclusion, a number of cases in which similar epileptic attacks were preceded by some alteration in the sense of smell.

Von Mandech ('Beitrag zur Kenntniss der Epilepsie, ihrer Folge und Complicationen," 'Virch. Arch.,' lvii, 237) gives the history and autopsy of an epileptic male, æt. 52, who for some time had lost the sight of one eye. There was asymmetry of the skull and brain, and diffused yellowish-brown patches in the frontal lobes. In the left eye there was destruction of the retina of old standing, with atrophy of the vitreous body and the lens. The left optic nerve was of normal colour, but atrophied, and 2 mm. smaller than the right. The optic tracts seemed to be not fully developed behind the optic commissure; in colour and consistence they were normal, but divided into distinct limbs, one of which ran to the corpus geniculatum externum, the other to the c. g. internum. This division occurred earlier on the left than on the right side, and was evidently due to arrested development.

M. Huppert (ib., lix, 367) finds traces of abumen in urine passed just after an attack of epilepsy. It is more abundant in severe seizures. Hyaline casts were present in about half the severe cases, and in a less number of the slight ones; they always disappeared before the albumen. Red blood-cells did not occur, but spermatozoa were found in a tenth of the cases in which the attack was severe. He looks upon the albuminuria as a constant symptom of an epileptic attack. In cases of general paralysis he found albumen and red blood-cells present after epileptic attacks, and albumen without blood-cells in cases of acute mania.

J. Crichton Browne ('Journ. Ment. Sci.,' xix, 19) gives the results of the observation of the brains of 60 epileptic patients, which do not add much to what we already know. Hypertrophy, especially of the connective tissue, and induration, with other changes due to disturbed circulation during the attacks, or to changes in the vessels in cases of long standing, seem the most marked characteristics.

Obersteiner, "Ueber den Status Epilepticus," 'Wien. Med. Woch.,' 1873, No. 23. Jamot, "Cas très grave d'Épilepsie, Guérison par la Medication bromurée" (boy, æt. 15), 'Gaz. des Hôp.,' 1873, 92. Le Faucheux, "Guérison d'un cas très grave d'Épilepsie" (by the same drug), ib., 1060. Dickson, "On the Dynamics of Epilepsy

and Convulsions," 'Guy's Hosp. Rep.,' xviii, 174. Id., "The Functions of Brain and Muscle considered in relation to Epilepsy," 'Journ. Ment. Sci.,' xix, 374. Hughlings Jackson, "On the Anatomical Investigation of Epilepsy and Epileptiform Convulsions," 'Brit. Med. Journ.,' 1873, i, 531. Id., "Remarks on Coloured Vision preceding Epileptic Seizures," ib. ib., 174. Id., "On the After-effects of severe Epileptic Discharges; speculation as to Epileptic Mania," ib. ib. ib. Id., "Remarks on Systemic Sensations in Epilepsies," ib. ib. ib. Id., "Remarks on limited Convulsive Seizures, and on the after-effects of strong nervous discharges," 'Lancet,' 1873, ii, 840. Id., "Epileptiform Seizures beginning in the left hand, Epileptic Hemiplegia, double optic neuritis without affection of sight; recovery from the neuritis; syphilitic disease of both cerebral hemispheres," 'Med. Times and Gaz.,' 1873, i, 329. Id., "Remarks on the double condition of the Loss of Consciousness and Mental Automatism following certain Epileptic Seizures," ib., ii, 63. Chapman, "On Suffocation during a fit in cases of Epilepsy," 'Glasg. Journ.,' v, 453. Taylor, "Apoplectic Epileptiform Convulsions, with right hæmorrhagic infarction and slight left hemiplegia, followed by articular rheumatism, endocarditis, and death by thrombosis of the heart" (man, æt. 55), 'New York Med. Journ.,' xviii, 624. G. Johnson, "A case in which Trismus, with Facial Neuralgia and Palsy, and a recurrence of Epilepsy, were excited by a foreign body in a wound in the cheek" (man, æt. 44), 'Clin. Soc. Trans.,' vi, 38. Sutherland, "Epileptic Mania in a boy 4 years old," 'Brit. Med. Journ.,' 1874, i, 344. Robertson, "Epileptic Aphasia and Hemiplegia, coloured vision, syphilitic origin" (woman, æt. 45), ib. ib., 515. Russell, "A case illustrating the state of Mental Automatism which occurs in Epilepsy," ib. ib., 742. Dickson, "A case of Traumatic Epilepsy successfully treated by Trephining" (boy, æt. 16), 'Lancet,' 1873, i, 799. J. C. Forster and S. Wilks, "Blow on the Head, Epileptic Fits, trephining, cure" (man, æt. 39), ib., ii, 300. J. W. Ogle, "Case of Epilepsy presenting features of unusual interest," ib., 1874, i, 615. Ransom, "A succession of Epileptic Convulsions cut short by large doses of Bromide of Potassium," ib. ib., 368. J. C. Brown, "Nitrite of Amyl in Epilepsy," 'West. Rid. Lun. Asyl. Rep.,' iii, 153. Hummerich, 'Ueber Somnambule Zustände im Anschluss an Epilepsie und Verwandte Störungen,' Berlin, 1873.

### *Hemiplegia and Aphasia.*

Waldenburg records ('Berl. Klin. Woch.,' 1873, 8) a case of congenital aphasia in a boy, æt. 6. His mother had, in the third month of her pregnancy, a sudden attack of right hemiplegia, which had left some traces behind it still. The child was born at the full time, and the parents noticed in it later a weakness of the right side, loss of power in the right hand, and dragging of the right leg, which was shorter than the left. The child could not speak, or only produced a few indistinct words with difficulty, but its intelligence and hearing were perfect, so that it was not in the condition of the deaf and dumb. When it cried its voice was loud and clear. Examination of the mouth and larynx showed only some abnormal length of the frænum linguæ and slight paresis of the palate. The writer looks upon the affection here as one entirely due to an intra-uterine origin and congenital, and remarks that this case does not agree with the view that the central organ of speech is situated in both sides of the brain, though most developed on the left side; if that were so, this child, whose left brain was affected, ought to have learned to speak so far as the right was concerned, but such was not the case.

Gogol ('Ein Beitrag zur Lehre von der Aphasie,' Inaug. Diss., Breslau, 1873, pp. 23) gives the case of a man, æt. 28, throughout his life deficient in intelligence, who was thrown from a cart. The fall was followed by

aphasia, without paralysis. He died three years later of some chronic lung affection, and after death the following appearances were found:—The brain-substance of the left temporal lobe, up to within 4 cm. behind the Sylvian fissure, was of a yellow ochre colour and soft. The same was the case with the lower part of the third left frontal convolution, the anterior portion of the left gyrus rectus (marginal convolution), and the most internal part of the middle left frontal convolution, as also some of the convolutions on the lower surface of the cerebellum. The convolutions of the operculum (temporo-sphenoidal lobe) were diminished by softening, leaving the island (of Reil) open to view. The softened parts showed under the microscope hæmatoidin and nucleated cells, and sections of the hardened brain proved that the affection was limited to the cortical part of the brain.

Folet ('Gaz. Hebdom.,' 1873, 262) contributes the case of a man, æt. 60 (?), who had for twenty years right-sided hemiplegia and aphasia, with, as the autopsy revealed, lesion of the posterior lobe of the brain.

V. Hanot publishes ('Gaz. Méd.,' 1874, 226) the case of a woman, æt. 41, affected with general paralysis, who after repeated apoplectiform attacks became hemiplegic on the right side and aphasic, and at last died comatose. No points of hæmorrhage or softening could be found in the brain, but the left frontal convolution presented profuse interstitial encephalitis. He remarks on the careful use of the thermometer in these cases. After the apoplectiform or epileptiform attacks of paralytics the temperature rises and remains elevated till death occurs; after hæmorrhage or softening it sinks or remains stationary, rising only before the fatal termination. After an excessive attack in a woman, in whom dilatation of the ureters was caused by the pressure of a sarcoma of the uterus, the temperature was low up to the moment of death.

J. Lockhart Clarke records ('Brit. Med. Journ.,' 1874, i, 342) a case of epileptiform convulsions of the right side, with aphasia, in a man, æt. 74. For two years attacks of this nature had occurred at intervals of five or six months. The autopsy showed increased fluid under the arachnoid, and a small brain, the left side being much smaller than the right. The posterior half of the third frontal convolution, and the lower parts of the transverse (ascending) frontal and transverse (ascending) parietal convolutions, were very much wasted and depressed, so that the secondary gyri which run from them to the insula, and which normally are almost covered by them, were entirely exposed when the temporo-sphenoidal lobe was drawn aside. The arteries generally were atheromatous, the left ventricle thickened, the kidneys contracted, granular and cystic, and the liver small and somewhat cirrhotic.

T. G. Glover gives ('Clin. Soc. Trans.,' vi, 96) the further progress of a case of aphasia (see ib., v, 53), with the post-mortem examination. About a week before his death the patient had a more than usually severe epileptiform fit, followed by decided paralysis of the right side of the face and less complete of the right arm and leg, with severe convulsive movements of the left side of the body and face. The brachial and femoral arteries of the left side were found plugged. Softening was

found on both sides of the brain, affecting the third frontal convolution and the parts in its neighbourhood. Both middle cerebral arteries contained coagula. The medullary substance of the brain was thickly studded with minute spots of miliary sclerosis. There were also less numerous semi-transparent bodies, which, unlike the former, took the carmine dye. The minute vessels of the brain were largely dilated and contained blood-globules. The spaces round them contained in many parts blood-crystals.

W. Hannes, 'Ein Beitrag zur Lehre von der Aphasie' (two cases in men, æt. 50 and 41, recovery), Breslau, 1873, pp. 33. C. Westphal, "Ueber einige Bewegungserscheinungen an gelähmten Gliedern" (in a man, æt. 25, and a woman, æt. 58, both hemiplegic from early childhood), 'Arch. f. Psych.,' iv, 747. Schreiber, "Beitrag zur Lehre von der Aphasie," 'Berl. Klin. Woch.,' 1874, 308. Berthier, "Aphasie peu commune, Amélioration voisine de la guérison," 'Gaz. des Hôp.,' 1873, 225. Lemoine, "Cas d' Hémorrhagie cérébrale à forme insolite" (man, æt. 60, left hemiplegia), ib., 1874, 299. Henriet, "Hémorrhagie de la protubérance annulaire; hemiplégie droite avec paralysie partielle du facial à gauche (orbiculaire)" (man, æt. 68; autopsy), 'Presse Méd. Belge,' 1874, 125. Bouillaud, "Sur une question relative à la parole à l'état normal et anormal," 'Compt. Rend.,' lxxvi, 1388. Martin, "Interesting case of Aphasia" (boy, æt. 6), 'Dubl. Journ.,' lxvi, 298. Edis, "Case of Right Hemiplegia occurring suddenly during Pregnancy, continuance of the symptoms until parturition, rapid improvement immediately following the process, convalescence," 'Clin. Soc. Trans.,' vi, 195. Hughlings-Jackson, "On Hemiplegia with Paralysis of the Third Nerve," 'Lancet,' 1873, ii, 335. Id., "A case of Hemiopia, with Hemianæsthesia and Hemiplegia," ib., 1874, ii, 306. Id., "On a case of recovery from Hemiplegia," ib., i, 618. Id., "A case of Right Hemiplegia and Loss of Speech from local softening of the Brain" (man, æt. 28), 'Brit. Med. Journ.,' 1874, i, 804. Id., "Temporary Affection of Speech (Aphasia); 'Aphasic' Writing," ib. ib., 574. Id., "Clinical Lecture on a case of Hemiplegia," ib., ii, 69. Shaw, "On Aphasia," ib., i, 574. Jones, "A case of Aphasia" (man, æt. 32, incomplete), ib., i, 707. Frank Smith, "On Hephæstic Hemiplegia," ib., ii, 551. Inman, "Hephæstic Palsy," ib. ib., 587. Davidson and Puzey, "On feigned Hemiplegia" (young man), 'Lancet,' 1874, i, 474. Masterton, "Caries of the Atlas and Axis, Hemiplegia, death" (man, æt. 28), ib., ii, 197. J. C. Browne, "Epileptic Hemiplegia," ib. ib., 240. J. W. Ogle, "Epilepsy and Hemiplegia in a gouty subject, articulating glossophagia for some days, recovery" (man, æt. 67), ib., i, 441. Id., "Part of a Clinical Lecture on Aphasia," 'Brit. Med. Journ.,' 1874, ii, 163. C. H. Jones, "Attack of Convulsions lasting three hours, succeeded by permanent Right Hemiplegia and Aphasia, recurrence of fits of shorter duration, occasional cerebral excitement, death from a burn, autopsy, atrophy of the left hemisphere" (girl, æt. 7), 'Med. Times and Gaz.,' 1874, i, 371. Thorowgood, "Hemiplegia due to Arterial Embolism," ib., ii, 146. Russell, "Case of Hemiplegia from softening of the brain after ligature of the external and internal carotids," ib., i, 285. Id., 'Case of Left Hemiplegia with loss of speech occurring in a left-handed patient" (man, æt. 60, and another case in man, æt. 69), ib., ii, 36.

## *Impaired Articulation.*

Joffroy, "Note pour servir au Diagnostic differentiel des Paralyses labio-glosso-laryngées d'origine bulbaire ou d'origine cérébrale," 'Gaz. Méd.,' 1873, 48. "Revue: Paralysie glosso-labio-laryngée," 'Gaz. des Hôp.,' 1873, 337. Brouardel, "De la Paralysie glosso-labio-laryngée," ib., 1874, 481. Dowse, "A case of Glosso-laryngeal Paralysis (retrogressive), with remarks" (man, æt. 28), 'Lancet,' 1873, i, 839.

## *Hyperæsthesia, Anæsthesia, Neuralgia.*

Schüppel, "Ein Fall von allgemeiner Anästhesie" (man, æt. 42, after typhoid, death, autopsy, with plates of pathological appearances at different heights of spinal cord), 'Arch. d. Heilk.,' xv, 44. Horvath, "Kälteanästhesie," 'Centralbl.,' 1873, 209.

Veyssière, "Recherches expérimentales à propos de l'Hémianesthésie de cause cérébrale," 'Gaz. Méd.,' 1874, 170. M. A. Ollivier, "Contributions à l'histoire des Névralgies réflexes d'origine traumatique," ib., 228. O. Berger, "Zur Lehrè von den Gelenk-Neuralgien," 'Berl. Klin. Woch.,' 1873, 255. Révillout, "Les points de côté; la Névralgie intercostale de l'embarras gastrique," 'Gaz. des Hôp.,' 1873, 665. Philippe, "Lettre sur la Colique hépatique," 'Union Méd.,' xv, 831. F. E. Anstie, "On Facial Neuralgia with Hysteria," 'Med. Times and Gaz.,' 1874, ii, 113. E. S. King, "On the administration of Phosphorus in Neuralgia," ib., 1873, i, 412. S. M. Bradley, "Phosphorus in Neuralgia," 'Brit. Med. Journ.,' 1873, ii, 460. Bradbury, "Cases of Neuralgia treated by Phosphorus," ib., 1874, i, 344. C. H. Jones, "On Hyperexcitability and Paresis," ib. ib., i, 370. J. W. Allan, "Case of Sick Headache treated with Guarana powder," ib., 1873, ii, 250. P. W. Latham, "On Sick Headache," ib. ib., i, 7. Id., "The Pathology of Sick Headache," ib. ib., i, 113. Id., 'On Nervous or Sick Headache,' Cambridge, 1873, pp. 71. C. H. Jones, "Cases of Neurosal Headache," 'Med. Times and Gaz.,' 1874, i, 123. E. Liveing, "On Megrim, Sick Headache, and some allied disorders; a contribution to the Pathology of Nerve-storms,' Lond., 1873. O. Berger, "Zur Pathogenese der Hemicranie," 'Virch. Arch.,' lix, 315 (see abstract under Affections of Sympathetic). L. Hamon, "Hémicranie; inefficacité des injections sous-cutanées morphinées, du sulfate et du valérianate de quinine, &c.; excellents effets de la saignée malaire, effectuée à l'aide de la ventouse mécanique," 'Bull. Gén. de Thérap.,' t. 85, p. 507. F. E. Anstie, "Clinical Lecture on Sciatica and its treatment," 'Med. Times and Gaz.,' 1874, i, 581. R. Klemm, 'Ueber Neuritis Migrans' (artificially produced inflammation of sheath of sciatic nerve in rabbits), Strassburg, 1874, pp. 66. G. V. Poore, "Case of 'Lumbago' treated by the application of the Continuous Galvanic Current and the rhythmical exercise of the affected Muscles," 'Lancet,' 1873, ii, 899. J. W. Legg, "A case of Anosmia following a Blow," ib. ib., ii, 659. J. W. Miller, "Obstinate Sciatica treated by the Hypodermic Injection of Atropia, recovery," ib., 1874, ii, 682.

### *Meningitis, Hydrocephalus, Hæmorrhage.*

Béhier ('Gaz. Hebd.,' 1873, 148) gives the case of a drunkard, æt. 50, who during life had presented tremors, dulness of intelligence, slight contraction of the right upper extremity, and hyperæsthesia of the left thigh. He died of pneumonia, and post mortem was found a calcified hæmatoma within the meninges and the left side of the brain, pressing on and flattening the brain-substance beneath, with recent pachymeningitis in the neighbourhood. In addition there was tuberculosis of the lungs, liver, kidneys, and of the base of the brain, which had not been accompanied by any of the usual symptoms during life.

Bierbaum ('Deut. Klin.,' 1873, 81) gives an account of the usual pathologial and anatomical characters of tubercular meningitis. He also gives (ib., 184) a history of three cases which recovered (? diagnosis.—*Rep.*), and (ib., 310, &c.) thirty-one further histories unaccompanied by autopsies.

Bergeret ('Lyon Méd.,' xiii, 552) relates the following. A woman who had been infected by her husband thirty years previously, but had completely recovered, suffered from violent headache with great thirst and polyuria and vomiting. She died suddenly and the autopsy showed thickening of the meninges, with numerous small points of suppuration, adhesions of the pia mater, and great congestion, while the consistence of the anterior lobes was very soft. The diagnosis during life had been a gummatous tumour in the fourth ventricle, and the writer is in doubt whether he really had to deal with inflammation of the brain or with meningitis, or with the two combined.

F. E. Anstie publishes ('Clin. Soc. Trans.,' vii, 34) the case of a boy, æt. 13, whose symptoms commenced with a sensation of stiffness, followed by paralysis, of the legs, and loss of power in the upper extremities. There was no pyrexia, and intelligence was complete up to the time of death. The post-mortem examination showed only intense congestion of the vessels of the meninges of both brain and spinal cord.

A. Muron ("Note pour servir à l'étude des Troubles trophiques consécutifs aux Lésions cérébrales," 'Gaz. Méd.,' 1874, 482) has repeatedly observed certain conditions in cases of unilateral paralysis due to cerebral hæmorrhage in both external and internal organs. He has noticed, for instance, well-marked congestion, without any fatty change, in the kidney on the side opposite to that of lesion, and the same appearance in the skin of the knee-joints and back of the paralysed side, with distinct enlargement of the parotid on the paralysed side of the face.

Hanot and Joffroy (ib., 1873, 441) give two cases of sudden death in a woman, æt. 61, and a girl, æt. 17, due, as they suppose, to dropsy and dilatation of the fourth ventricle, and consequent compression of the medulla oblongata.

H. Rendu, 'Recherches sur les Paralysies liées à la Méningite tuberculeuse,' Paris, 1874. Debauge, "De l'Emploi du Sulfate de Quinine dans le traitement de la Méningite," 'Lyon Méd.,' xv, 22. W. Dowse, "Case of Occipito-spinal Meningitis, accompanied by double facial and general paralysis" (man, æt. 28, history of syphilis, recovery), 'Brit. Med. Journ.,' 1874, i, 172. Miller, "Cerebral Meningitis, death, Necropsy" (female, æt. 26; male, æt. 52), ib., ii, 682. Burder, "Cerebral Meningitis, with formation of pus beneath the Arachnoid" (man, æt. 24), 'Lancet,' 1873, ii, 82. Peacock, "Acute Meningitis in an Infant," ib., 415. Greenfield, "Cases of Tubercular Meningitis," ib., 1874, i, 266, 297, 584, 833. Woods, "Tubercular Meningitis in an Adult Idiot, no tubercle found in the lungs" (girl, æt. 16; "six or seven tubercles, some as large as peas, seen on section of corp. striat. and optic thal. on right side"), ib., ii, 32. Martyn, 'Tubercular Basilar Meningitis, double Optic Neuritis" (girl, æt 16, lungs only congested, bronchial glands cheesy, other organs normal), 'Med. Times and Gaz.,' 1873, ii, 691. Lepine, "Sur une particuliarité relative a là rotation de la Tête et la déviation conjuguée des Yeux dans certains cas d'Apoplexie," 'Gaz. Méd.,' 1873, 65. Landouzy, "Affection Mitrale, attaque apoplectiforme, hemiplegie gauche, déviation de la face et des yeux à gauche, mort en cinquante-deux heures" (with autopsy), ib, 105. Desnos, "Hémorrhagie de la Protubérance annulaire, rotation de la tête et déviation conjuguée des yeux du coté opposé à la lésion," 'Union Méd.,' xv, 435. Liouville, "Diagnostic du siége d'une Hémorrhagie de la Protubérance par l'application de la Physiologie expérimentale" (sugar and albumen in urine removed by catheter from male patient during unconsciousness, autopsy), 'Gaz. des Hôp.,' 1873, 121. Foville, "Mort instantanée d'un Viellard de 76 ans, qui depuis quatre ans avait eu plusieurs attaques apoplectiques; autopsie, absence de toute lésion grave et récente dans l'encéphale, le cœur, le poumon; fracture de l'apophyse odontoïde," ib., 229. Lemoine, "Cas d'Hémorrhagie cérébrale à forme insolite," ib., 1874, 299. Béhier, "Coagulations veineuses multiples, suite de couches; ramollissement et hémorrhagie cérébrale," ib., 489. Luys, "Congestion cérébrale, mort par pleuro-pneumonie; autopsie, réflexions sur l'électrisation localisée comme moyen de diagnostic entre la congestion et l'hémorrhagie cérébrale," ib., 823. Ollivier, "De la Congestion et de l'Apoplexie rénales dans leurs rapports avec l'hémorrhagie cérébrales," 'Arch. Gén.,' xxiii, 129. Magnan, "De l'état de la Température à la suite d' une attaque apoplectiforme dans un cas de Paralysie générale" (no rise), 'Gaz. Méd.,' 1874, 281. Joris, "De l'Apoplexie cérébrale, étudiée principalement au point de vue de ses causes et son traitement," 'Presse Méd. Belge,' 1874, 185. Feinberg, "Fall von granulärer Nierenatrophie, Blutung an der Gehirnbasis, Erweichung in den Centralganglien und Gehirnschen-

keln," 'Berl. Klin. Woch.,' 1873, 88. Kesteven, "Disease of the Brain, Spleen, and Kidney" (man, æt. 25, clot in left lateral ventricle and in sac of arachnoid on same side, spleen twice its normal size, dilatation of pelvis of kidney), 'Path. Soc. Trans.,' xxiv, 13. Christison, "Cerebral Hæmorrhage mistaken for Hysteria" (woman, æt. 32, old and recent clot in neighbourhood of third frontal convolution), 'Edin. Journ.,' xix, 15. Berry, "Case of Apoplexy simulating Drunkenness" (man, æt. 40, autopsy, rupture of right middle cerebral artery, granular kidneys), 'Brit. Med. Journ.,' 1874, i, 455. Woodhouse, "Case of Cerebral Apoplexy in a Boy" (æt. 14, autopsy), ib., ii, 277. Dowse, "Aneurismal Dilatation with Rupture of posterior communicating Artery, Hæmorrhage, softening, and general submeningeal hæmorrhage over the entire brain-substance" (man, æt. 55), 'Lancet,' 1874, i, 52. Sansom, "Case of Congenital Hydrocephalus" (child, æt. 11), ib., 1873, i, 736. (For other papers on hydrocephalus, see under "Rickets.")

*The Opthalmoscope in Diseases of the Nervous System.*

C. Aldridge, "Ophthalmoscopic Observations in Acute Dementia," 'West Riding Lun. Asyl. Rep.,' iv, 291. J. H. Jackson, "On a case of recovery from Double Optic Neuritis," ib. ib., 24. Id., "Ophthalmoscopic Examination during an attack of Epileptiform Amaurosis," 'Lancet,' 1847, i, 193. Id., "Sudden Death in Cerebral Disease, necessity of routine ophthalmoscopic examination in cases of disease of the brain" (woman, æt. 28, no autopsy), ib., 1873, i, 875. C. Peipers, "Ueber Neuroretinitis bei Gehirnerkrankungen" (four cases of the affection, accompanying in the first sarcoma of the left temporal lobe and extensive dilatation of the ventricle; in the second, hydrocephalus internus permagnus; in the third, multiple tuberculosis of the brain; and in the fourth, abscess in the right occipital lobe), Inaug. Diss., 1873. S. W. Mitchell, "Cases illustrative of the use of the Ophthalmoscope in the Diagnosis of Intracranial Lesions," 'Amer. Journ. Med. Sci.,' lxvi, 91. Bouchut, "Ophthalmoscopie médicale; revue cérébroscopique pendant l'année 1872," 'Gaz. des Hôp.,' 1873, 202. Id., same for 1873, ib., 1874, 1. M. Perls, "Zur Kenntniss der Tuberculose des Auges," 'Arch. f. Ophth.,' xix, 221.

*Abscess of the Brain, Softening, Embolism, Tumours.*

Meschede ('Deut. Klin.,' 1873, 297) records the following case. A man, æt. 22, had presented during life all the symptoms of a cerebral tumour, and post mortem a carcinomatous growth the size of an apple was found in the posterior fossa of the skull on the left side, growing from the dura mater. Ladame and other writers say that tumours of the posterior lobes cause no symptoms, but in this case there had been amaurosis of the right and amblyopia of the left eye. Another interesting fact was that, in spite of the situation of the tumour, the sight of the right eye was affected earlier and to a greater degree than that of the left.

Choupe (' Arch. de Phys.,' v, 209) publishes the case of a woman, æt. 45, who had had right-sided hemiplegia for twenty years, and presented symptoms of brain tumour. After death a fatty tumour was found between the right olfactory and the longitudinal fissure, and two others on the upper surface of the corpus callosum (cf. case of same kind recorded by Coats, below).

C. Kelly found ('Path. Soc. Trans.,' xxiv, 6) in a boy, æt. 11, who had presented cerebral symptoms, a papillomatous tumour occupying and distending the fourth ventricle. It pushed up the valve of Vieussens and pushed outwards the cerebellum on each side, while it also grew downwards and appeared at the base of the brain on the left side of the medulla. It was tremulous and of irregular shape, granular on surface, and of a yellow or reddish-yellow colour;

its greatest breadth was 1½ inch, and its depth about 1 inch. It consisted of a vast number of delicate tufts, each supplied with a thin-walled and wide vessel, and clothed with columnar epithelium. The growth was very vascular, and in some parts small hæmorrhages had taken place; it had apparently been developed from the choroid plexus of the fourth ventricle, and then grown into and enlarged that space. The other organs were healthy.

W. G. Balfour gives ('Lancet,' 1873, ii, 838) three cases of tumours attached to the dura mater and pressing on the brain-substance. They occurred in two women, aged respectively 71 and 55, and a man, aged 45, inmates of a lunatic asylum. In all three the symptoms during life were markedly similar. There was pain in the face or frontal region, intense, but irregular in severity or occurrence; a complete change in habits and disposition, with delusions, aphasia, paralysis, apoplectiform or epileptiform seizures. In the first case was found fibrous and osseous tumours, in the second a gummatous tumour, and in the third grey miliary tubercles of the size of barley seeds; all had their origin in the dura mater, and pressed on and destroyed superficial portions of the brain-substance.

J. H. Thomas gives ('Lancet,' 1873, ii, 877) the history of a man, æt. 27, who for some months had complained of severe headache. Four days before his death he became restless, wandering, and at last unconscious. Two hours before he died he had a convulsion, followed by others. *Post mortem*, the dura mater was abnormally adherent to the skull, the vessels of the pia mater were injected, and pus was present over the anterior surface of the left hemisphere and on the under surface of the pons and cerebellum. In the anterior and lower part of the left hemisphere there was an abscess about the size of a walnut, with a distinct cyst-wall, and containing green pus, which had apparently found its way into the ventricles. With the exception of pleuritic adhesions on the right side, the other organs were healthy.

J. Arnold ('Virch. Arch.,' lvii, 145) records two cases of osteoma in the frontal sinuses. In the first it commenced within the sinus, through the valves of which it worked its way, otherwise lying free and moveable in the cavity. In the second it was much larger, and sent processes through the walls. A portion of the tumour was removed, but the patient died with convulsions and coma. The post-mortem examination showed the presence of purulent meningitis, with an abscess in the left frontal lobe, which had burst into the left lateral ventricle. Plates of the portions of skull engaged, and the tumours, in both cases, are given.

T. Lockhart Clarke records ('Clin. Soc. Trans.,' vi, 68) the case of a naval officer, æt. 47, who 30 years before had fallen into the hold of his ship. In the early part of 1869, while in the Tagus, he suffered severely from intermittent fever, attended by severe headache and occasional delirium. This was followed later by intense pain in the back of the head, recurring every morning, attended by impairment of vision, and succeeded by rigors and heat of skin, without sweating. There was great derangement of the digestive organs. Later still, he became totally blind; the pain extended down the spine; there was dysphagia and sometimes vomiting; his lower limbs lost their power.

The autopsy showed on the posterior inferior aspect of the left lobe of the cerebellum a clot of blood about the size of a florin, and beneath it, embedded near the surface of the cerebellum, two cysts filled with glairy fluid, one the size of a walnut, the other that of an almond. His mother had died after a long-continued succession of paralytic seizures, and in addition to atheromatous change in the arteries of the brain her cerebellum contained patches of softening cysts in the white substance of each lobe, and there was atrophy of the substance and nerve-cells of one of the olivary bodies. One of her daughters was, when the author wrote, under his care for paralysis agitans with a curious complication, viz. permanent contraction of the left wrist, extension of the first phalanges, and contraction of the remaining phalanges. Her diathesis was, like her mother's, gouty.

Westphal publishes ('Berl. Klin. Woch.,' 1873, 205) the case of a boy, æt. 17, who had suffered for about six months from headache, vomiting, and other symptoms. A month later a fluctuating tumour presented itself on the right frontal bone, which on being punctured set free numerous hydatid cysts. After their evacuation the exophlthalmos and difficulty of sight improved, and the boy finally recovered.

Sunderland ('Lancet,' 1873, i, 201) states the following case. A man, æt. 29, had suffered for ten weeks before admission into hospital from pains in the back of his head and neck, noises in the ears, vomiting, staggering gait, and increasing impairment of hearing, speech, and memory. His general condition was otherwise normal. The optic discs were hyperæmic. A month later he died comatose. At the base of the brain was found a hydatid cyst, which seemed to have become developed in the anterior subarachnoid space and bulged into the third ventricle. The third nerve on each side, especially on the right, was flattened out. The corpora albicantia had disappeared. Another large cyst was present in the right lobe of the liver, and another in the left kidney.

Stock showed to the Manchester Medical Society ('Brit. Med. Journ.,' 1874, i, 111) a hydatid cyst removed from the left lateral ventricle of a lad, æt. 22. Three months before death "he had received a severe blow on the head," followed by intense pain, irritability, vertigo, tremors, and slight dilatation of the pupils. He had no convulsions, and died apparently from coma. The cyst had produced an opening through the brain-substance into the longitudinal fissure.

J. S. Bristowe gives ('Path. Soc. Trans.,' xxiv, 9) the case of a girl, æt. 17, in whom was found a nearly globular cyst, between 1¾ and 2 inches in diameter, partly in the anterior, partly in the middle lobes of the left hemisphere of the cerebrum, containing a solitary healthy hydatid. It seemed to have orginated between the corpus striatum and the convolutions of the island of Reil, and in its progress gradually to have displaced the neighbouring parts of the brain without destroying them. The symptoms during life were headache, paralysis of face and tongue, and epileptic fits.

E. Kotsonopulos, "Zur Casuistik der Hirntumoren," 'Virch. Arch.,' lvii, 534. J. Simon, "Ueber Neubildung von Gehirnsubstanz in Form von Geschwülsten an der Oberfläche der Gehirnwindungen," ib., lviii, 310. Annuske, "Die Neuritis Optica bei Tumor Cerebri," 'Arch. f. Ophth.,' ix, 165. H. Jackson, "Lectures on the

Diagnosis of Tumours of the Brain," 'Med. Times and Gaz.,' 1873, ii, 139. Id., "A series of cases illustrative of Cerebral Pathology: cases of Intracranial Tumour," ib. ib., i, 223. Russell, "Malignant Tumour from the Bones at the base of the Cranium successively destroying the several Ocular Nerves, the progress marked by paralysis of the muscles of the globe and by horizontal loss of vision (with second case of Sarcomatous Tumour from Dura Mater)," ib. ib., ii, 91. Id., "Large Cancerous Tumour of the Brain, in a case of Intrathoracic Cancer; unilateral epilepsy, followed by temporary hemiplegia; absence of vomiting and of important headache," ib., 1874, i, 530. Ramskill, "Case of Tumour of the Brain" (gliomatous, in left hemisphere, in man, æt. 66), ib. ib., i, 558. Headland, "Case of Sarcomatous Tumours of the Brain, secondary to malignant disease of the knee-joint" (boy, æt. 19), ib. ib., i, 585. E. F. Fussell, "Notes on a case of Tumour in the Brain," 'Brit. Med. Journ.,' 1873, ii, 345. C. Browne, "Cancer of the Brain," ib. ib., i, 425. J. Coats, "A peculiar Fatty Growth of the upper surface of the Corpus Callosum" (from man, æt. 38, who died from tubercular Meningitis), ib., 1874, ii, 75. R. S. Smith, "Case of Cerebral Tumour, Glioma" (man, æt. 38, convulsions, death, autopsy), ib. ib., i, 736. E. Smith, "Case of a large Sarcomatous Tumour of the Brain in a Boy" (æt. 5½), 'Lancet,' 1873, i, 49. Crocq, "Tumeur de l'Encéphale" (glio-sarcoma of left hemisphere), 'Presse Méd. Belge,' 1873, 177. Ball, "Observation de Tumeur cérébrale," 'Gaz. Hebd.,' 1873, 387. Hallopeau, "Note sur deux faits de Tumeurs de Mesocéphale" (woman, æt. 50, tumour pressing on medulla oblongata and cervical cord, with degeneration of latter in dorsal region; girl, æt. 18, tuberculous tumours in cortical substance of brain), 'Gaz. Méd.,' 1873, 111. Brochin, "Tumeur cérébrale diagnostiquée à l'aide de l' Ophthalmoscope" (woman, æt. 44, autopsy), 'Gaz. des Hôp.,' 1874, 865. M. B. Ball, "Des Tumeurs cérébrales" (woman, æt. 40), ib. ib., 874. Bouchut, "Glioma du Cervelet; Paraplégie incomplète devenant Paralysie ascendante; Méningite tuberculeuse, double Névrite optique, mort et autopsie" (girl, æt. 11, convalescing from scarlet fever), ib. ib., 385. Lasègue, "Tubercles multiples du Cervelet, neurorétinite" (girl, æt. 21), 'Arch. Gén.,' xxi, 747. Curschmann, "Klinisches und Experimentelles zur Pathologie der Kleinhirnschenkel," 'Deut. Arch.,' xii, 356. R. T. Edes, "Tumour affecting Nerves of Seventh Pair and Cerebellum upon left side," 'Bost. Med. Surg. Journ.,' lxxxviii, 97. J. Curnow, "Tumour implicating the Left Phrenic Nerve" (woman, æt. 51; no life history), 'Path. Soc. Trans.,' xxiv, 14. Berger, "Gliomes développés sur le trajet des branches du Nerf de la cinquième paire chez la Poule," 'Arch. de Phys.,' v, 235. McAnderson, "A case of supposed Disease of the Pons Varolii" (woman, æt. 37), 'Lancet,' 1874, ii, 333. Garrod, "Papillomatous Tumour in the Fourth Ventricle of the Brain" (boy, æt. 11), ib., 1873, i, 303. S. Lawrence, "Report of a case of Intracranial Tumour, with remarks" (youth, æt. 21, autopsy, fluctuating tumour at base), 'Edin. Journ.,' xix, 809. J. Arnold, "Adenom der Glandula Pituitaria," 'Virch. Arch.,' lvii, 184. J. V. Rustizky, "Epithelial-carcinom der Dura Mater mit hyaliner Degeneration," ib., lix, 191. Bergeret, "Fibrome disséminé des Méninges, hyperhydrurie" (female, æt. 35, no autopsy), 'Lyon Méd.,' xv, 101. Liouville and Longuet, "Tumeur de nature tuberculeuse des Méninges de la Face intérieure du Cerveau; phénomènes nèvralgiques et paralytiques divers, générations secondaires" (woman, æt. 50, with plate), 'Arch. de Phys.,' v, 322. Hardie, "Fungous Tumour of the Dura Mater" (woman, æt. 52), 'Brit. Med. Journ.,' 1874, i, 111. A. T. Loomis, "Pachymeningitis, with Gummy Tumour of Dura Mater," 'New York Med. Journ.,' xx, 186. Id., "Gummy Tumour of Dura Mater" (man, æt. 43), ib. ib., 197. T. Simon, "Zur Pathologie der Grosshirnrinde," 'Berl. Klin. Woch.,' 1873, 36. J. B. Tuke, "On a case of Hypertrophy of the Brain (right Cerebral Hemisphere) with coexistent Atrophy of the left side of the Body" (man, æt. 37), 'Journ. of Anat.,' 1873, No. xii. L. Landouzy, "Hypertrophie du Cerveau chez un Enfant, examen histologique négative comme dans un cas de microcéphalie avec idiotie" (boy, æt. 10, intelligent, death from gastric (?) disturbance), 'Gaz. Méd.,' 1874, 328. S. Wilks, "Probable Sanguineous Effusion between the Membranes of the Brain, the result of an injury to the Head; Lead-poisoning, recovery" (boy, æt. 13), 'Lancet,' 1873, ii, 876. T. Simon, "Ein Fall geheilter Hirn- und Nieren-verletzung" (man, æt. 31), 'Deut. Klin.,' 1873, 153. Ramskill, "Cases of Cyst in the Brain" (youth, æt. 21, and child, æt. 4), 'Brit. Med. Journ.,'

1873, ii, 691. H. C. Lawrence, "Cyst-wall of a Congenital Serous Cyst, presenting at the Anterior Fontanelle" (infant; died æt. 8 months of bronchitis), 'Path. Soc. Trans.,' xxiv, 1. R. Boyd, "Preternatural Cavities in the Brain of the Sane and the Insane," 'Med.-Chir. Trans.,' lvi, 325. G. P. Rugg, "Case of Hydatid of the Brain, Epileptic Convulsion, death" (girl, æt. 17, cyst on floor of right lateral ventricle, attached to optic thalamus), 'Brit. Med. Journ.,' 1874, i, 139. Maunder, "Abscess in the left lobe of the Cerebellum from Suppurative Disease of the Ear, double Optic Neuritis" (girl, æt. 16), 'Lancet,' 1873, i, 443. H. Jackson, "Abscess in the right lobe of the Cerebellum, no Optic Neuritis" (man, æt. 33), ib. ib., i, 445. R. H. Lloyd, "Abscess of the Brain the result of a Blow on the Skull; absence of fracture, death" (man, æt. 26, abscess in roof of right ventricle, not extending down to it), ib. ib., i, 697. S. Ringer, "Abscess between the Dura Mater and the Skull, with persistent Fever" (boy, æt. 11, autopsy), ib. ib., ii, 228. Burder, "Abscess of the Brain," ib. ib., ii, 877. Clark, "Cerebral Abscess in a Child," 'Brit. Med. Journ.,' 1873, ii, 632. W. B. Dalby, "On Diseases of the Ear in relation to Pyæmia and Cerebral Abscess," ib., 1874, i, 337. W. Fuller and W. H. Dickinson, "Pyæmia, Multiple Abscesses in Brain," ib. ib., i, 9. H. Thompson, "Case of Otitis, Cerebral Abscess, and Malformation of the Heart" (child, æt. 4), 'Med. Times and Gaz.,' 1873, i, 325. J. Parrot, "Étude sur le Ramollissement de l'Encéphale chez les Nouveau-né," 'Arch. de Phys.,' v, 59. F. Warner, "Case of Red Softening of the Brain" (woman, æt. 25, autopsy), 'Lancet,' 1873, i, 91. H. Jackson, "Cases of Intracranial Tumour," 'Med. Times and Gaz.,' 1874, ii, 441, 471. Ferrier, "Cerebral Tumour, Autopsy, Remarks" (man, æt. 50, fibro-sarcoma in left hemisphere), 'Lancet,' 1874, ii, 760. v. Steinmann, "Heerderkrankung im Kleinhirn mit dem klinischen Symptomen des Aneurysma der Basilararterie," 'Deut. Arch.,' xiii, 186.

## *Affections of the Spinal Cord.*

C. Westphal ("Die fleckweise oder disseminirte Myelitis," 'Arch. f. Psych.,' iv, 338) writes on disseminated myelitis ("sclérose en plaques"), in which sections of the cord made at various heights show patches of affected white and grey substance separated from one another by portions of normal tissue. He gives two cases occurring in men, aged respectively 32 and 22, attacked with varioloid, in whom this condition was found. In the first case paralysis of the bladder occurred eleven days after the eruption, followed by paralysis of the left leg on the twelfth day and of the right leg on the thirteenth. In the second case there was paraplegia, commencing a few days after the eruption showed itself. The autopsies and microscopical appearances, with plates, are given in full. He compares with these two of Damaschino's cases of "infantile spinal paralysis,"[1] in which smallpox and dysentery seemed to have been the starting points of the affection, and, in addition to cases reported by West and others, quotes one from Heine, in which this form of paralysis—not to be confounded with that often occurring after acute fevers—followed scarlet fever. He argues, in conclusion, that no difference can be made out pathologically between the disease as it occurs in adults and in children. He gives a third case in which the same morbid change was found after death from phthisis, preceded by paralysis of the extremities and bladder.

Bernhardt (ib., 370) discusses almost the same question in a paper "On an Affection of Adults resembling the Spinal Paralysis of Children." He gives the case of a man, æt. 35, previously healthy, who while suffering from diarrhœa caught a severe cold. Paralysis of the ex-

[1] Cf. 'Bienn. Rep.,' 1871-72, p. 96.

tremities, and of them alone, came on some few days later, and remained for some months. In the absence of any examination, as the patient recovered, he discusses the probable changes in the white and grey matter and the ganglion-cells.

A. Frey ("Ueber temporäre Lähmungen Erwachsener, die den temporären Spinal-lähmungen der Kinder analog sind und von Myelitis der Vorherhörner auszugehen scheinen," 'Berl. Klin. Woch.,' 1874, 4) contributes several cases of a similar nature. In illustration of the statement that in infantile paralysis the affected muscles may regain power, certain changes in the anterior horns being assumed to take place, he gives a case of the kind. The third history he gives is that of a patient, æt. 33, in whom the affection was accompanied by such great pyrexia and cerebral disturbance that it was supposed to be the commencement of a typhoid, but the symptoms corresponded later with those in the cases described by the writer already quoted, and the patient ultimately recovered.

A. Joffroy has made experiments ('Gaz. Méd.,' 1873, 484) on dogs, causing symptoms of myelitis and *ataxie locomotrice* by injuring the cord in the dorsal and lumbar regions. He finds swelling of the axis-cylinders, proliferation of certain cells (Deiter's ?) in the grey substance of the cord, and dilatation of the whole of the central canal, which was filled with granular substance.

E. Troisier ("Note sur deux cas de Lésions scléreuses de la Moëlle épinière," 'Arch. de Phys.,' v, 709) gives at length, with plates of the lesions found, the history of two cases in which paraplegia of the lower extremities was accompanied by only partial sclerosis of the cord. In both the very circumscribed change was situated in the dorsal portion of the cord. Troisier, remarking on the symptoms presented during life in these cases, observes that they support, clinically, the views put forward by Brown-Séquard, and based on his experiments on unilateral section of the cord. At the same time they are examples of one form under which, without reference to tabes dorsalis and disseminated sclerosis, chronic myelitis may occur.

P. Flechsig ('Arch. d. Heilk.,' xiv, 464) discusses certain relations which he believes to exist between secondary degenerations of the cord and antecedent processes of development of its ultimate tissues.

L. Martineau ('Union Méd.,' xvii, 395) records a case of acute general inflammation of the grey substance of the cord. The patient was a youth, æt. 23, perfectly well up to seventeen days before his death, when he was attacked with headache and a feeling of general weakness, accompanied by paralysis of the bladder, weakness of the upper extremities, especially the right arm, and severe pain down the spine. Death occurred from asphyxia. The autopsy revealed the white substance of the column normal, the grey in a condition of inflammatory change. The ganglion-cells of the anterior horns had almost altogether disappeared, being replaced by spherical elements, ·005 to ·007 mm. in diameter, which were also present along the walls of the arteries. Similar changes were found in the perivascular sheaths of the vessels. The nerve-nuclei of the medulla oblongata were normal.

A. Nieden gives ('Clin. Soc. Trans.,' vi, 75), the case of a man, aged

60, who fell down fourteen or fifteen steps, and in whom after death there was found dislocation without fracture of the first dorsal vertebra, with compression of the corresponding portion of the spinal marrow. There had been loss of consciousness for a short time, complete paralysis of the lower extremities, greater part of the trunk, of the chest, and also of the bladder. There was progressive lowering of the temperature and the pulse, and the patient died on the eleventh day after the injury with a temperature of 80·6° F. (27·0° C.). He retained consciousness up to the time when his temperature was 81° F. (27·2° C.) and his pulse 30. With this extraordinary decrease in temperature and pulse the number of respirations was not materially diminished, but the quality was changed; as the temperature went down the inspirations became shorter and the expirations longer.

M. Bernhardt gives ('Arch. f. Psychiatrie,' iv, 227) a case of unilateral injury of the spinal cord in a woman, æt. 61; the right extremities retained the power of movement, but not sensibility. An abortive form of spinal epilepsy was also noticed on the paralysed side, such as Brown-Séquard observed after division of one half of the cord in guinea-pigs. There was in this case no anæsthesia over the parts supplied by the fifth nerve.

F. Riegel records ('Berl. Klin. Woch.,' 1873, 208) a case of the same kind in a man, æt. 22, who was stabbed in the neck with a knife. After remaining for some time in a state of insensibility he presented the following symptoms:—On the left side paralysis of all the muscles with the exception of those of the head and neck, with hyperæsthesia of touch, temperature and pain, increase of reflex irritability, and later on atrophy of the paralysed muscles, with corresponding changes in the temperature. On the right side of the body there was an almost entire anæsthesia of all forms of sensation, with complete power of motion. Riegel concludes from the symptoms that the left half of the cervical cord was divided in this case. The tremors and increased reflex irritability were treated successfully with hypodermic injections of arsenious acid.

Meschede ('Deut. Klin.,' 1873, 293) gives a case of sarcoma of the spinal cord with secondary grey degeneration. The patient, a female, had had complete paralysis of the lower extremities for some time before death. The autopsy revealed the presence of a tumour of the size of a bean growing from the inner surface of the pia mater, in the neighbourhood of the last cervical and first dorsal vertebræ, and pressing upon the posterior and left side of the cord. As to the partial grey degeneration in the neighbourhood, he would ascribe it in this as in other cases to the amount of pressure on the cord.

Charcot, "Clinical Lectures on Diseases of the Spinal Cord," 'Lancet,' 1874, ii, 73. Moxon, "Case of Insular Sclerosis of Brain and Spinal Cord," ib., 1873, i, 236. G. F. Fox, "Cerebro-spinal Sclerosis" (*résumé* of Bourneville's and Guérard's observations, &c.), 'Med. Times and Gaz.,' 1874, ii, 143. Lockhart Clarke, "Sclerosis of the Spinal Cord," 'Path. Soc. Trans.,' xxv, 16. Pierret, "Note sur un cas de Sclérose primitive du faisceau médian des Cordons postérieurs," 'Arch. de Phys.,' v, 74. Debove, "Note sur l'Histologie pathologique du Sclérose en plaques," ib., 745. Charcot, "Sclérose symmétrique primitive de la partie postérieure des Cordons antéro-lateraux," 'Gaz. Méd.,' 1874, 38. Du Castel, "Observation de Sclérose primitive des Cordons de Goll," ib., 33. Gombault, "Sclérose symmétrique des Cordons antéro-lateraux:

atrophie musculaire progressive, lésions du noyau d'hypoglosse," ib., 1873, 514. Id., "Note sur un cas de Paralysie spinale de l'Adulte, suivi d'autopsie," 'Arch. de Phys.,' v, 80. "Des Myélites aigues" (revue), 'Gaz. des Hôp.,' 1874, 329. Crocq, "Myélite des Cordons antérieurs et postérieurs" (in man, æt. 24, still living at time of note), 'Presse Méd. Belge,' 1874, 172. Clark, "Acute Softening of Spinal Cord" (in girl, æt. 11), 'Lancet,' 1874, i, 442. Woodman, "A case of Acute Spinal Disease: Myelitis or Hæmorrhage?" (man, æt. 47, no autopsy), 'Med. Times and Gaz.,' 1874, i, 584. Greenhow, "Case of Spinal Hemiplegia" (man, æt. 36), ib. ib., 96. Fayrer, "Case of Reflex Paralysis, supervening about the seventh month of pregnancy in a primipara" (Subacute Myelitis), 'Path. Soc. Trans.,' xxv, 6. Kesteven, "Disease of Spinal Cord (unilateral), with paralytic symptoms (bilateral)," ib., 10. Id., "Absence of Posterior Vesicular Columns of the Spinal Cord," ib., 12. Hayem, "Observation pour servir à l'historie des Tubercules de la Moëlle épinière," 'Arch. de Phys.,' v, 431. Id., "Sur les altérations de la Moëlle consécutive à l'arrachment et à la résection du nerf sciatique chez le lapin," ib., 504, and 'Compt. Rend.,' lxxxviii, 291. J. Ogle, "Clonic Spasmodic Contraction of the Muscles of the Neck, possibly having its origin in some affection of the contents of the spinal canal" (tinplate-worker, æt. 50), 'Clin. Soc. Trans.,' vi, 114. Browne, "Complete Paraplegia from a Fall, with Recovery," 'Lancet,' 1873, ii, 152. Ramskill, "Cases of Curvature of the Spine, Paraplegia, Recovery," ib. ib., 414. Oglesby, "Case of Sclerosis of the Optic Disks following Spinal Injury," 'Brit. Med. Journ.,' 1874, i, 345. Dowse, "Fractured Spine, pressure upon the cord in the upper dorsal region," 'Path. Soc. Trans.,' xxv, 1, Whipham, "Tumour of the Spinal Dura Mater, resembling Psammoma, pressing upon the cord" (woman, æt. 34), ib., xxiv, 15. Godlee, "Melanotic Sarcoma in the Medulla Oblongata secondary to a similar growth situated probably in a lymphatic gland," ib., xxv, 18. Crocq, "Méningite Spinale" (female, æt. 40), 'Presse Méd. Belge,' 1874, 229. Lasègue, "Méningite Spinale supposée de nature rhumatismale, guérison" (man, æt. 37), 'Arch. Gén.,' xxiii, 743. Joffroy, 'De la Pachyméningite cervicale hypertrophique (d' origine spontanée),' Paris, 1873, pp. 114. Dowse, "On Basic Cerebro-spinal Meningitis," 'Med. Times and Gaz.,' 1874, i, 124. Oppler, "Rückenmarks-epilepsie?" 'Arch. f. Psych.,' iv, 784.

*Ataxie Locomotrice.*—Pierret, "Considérations anatomiques et pathologiques sur le Faisceau postérieur de la Moëlle epinière," 'Arch. de Phys.,' v, 534. Charcot, "Luxations pathologiques et Fractures spontanées multiples chez une femme atteinte d'ataxie locomotrice" (æt. 57), ib., ser. 2, i, 166. Bouchut, "Ataxie locomotrice et Sclérose des Cordons postérieurs de la Moëlle chez les enfants; signes ophthalmoscopiques," 'Gaz. des Hôp.,' 1874, 297. Sée, "Des Troubles oculaires dans l'Ataxie locomotrice," ib., 674. Mitchell, "The Influence of Rest in Locomotor Ataxia," 'Amer. Journ. Med. Sci.,' xlvi, 113. Drinkard, "Progressive Locomotor Ataxia, treated by hypodermic injection of strychnia," ib., 116. Vossius, 'Beiträge zur Symptomatologie der Tabes dorsalis,' Berlin, 1873.

### *Infantile Paralysis.*

M. Roth ('Anatomischer Befund bei Spinaler Kinderlähmung,' 'Virch. Arch.,' lviii, 263) gives the case of a child, æt. 2, who had had partial paralysis of the lower limbs, and died eventually of diphtheria. The paralysis and wasting were most marked in the right leg, and under the use of electricity there was some improvement in the course of a year. He gives a full description, with a plate, of the pathological changes found. The lumbar enlargement of the cord was but slightly developed, the anterior roots of the cauda equina of a marked grey colour, flattened and atrophied. On section the anterior grey horns were of a dusky greyish-white colour, and indistinctly marked off from the lateral columns. The latter themselves were grey. Sections of the hardened cords showed the presence of inflammatory matter about the anterior horn for a length of about 30 mm. through the lumbar region on the right side,

with a similar but less extensive change for about 10 mm. on the left. The process, which he looks upon as an interstitial myelitis, had thus its seat essentially in the anterior grey columns, attacking here and there the posterior horns and the white substance of the anterior and lateral columns. In the affected regions nucleated cells were present both in the tissue and in the adventitia of the large vessels, at some points so accumulated as to give the appearance of circumscribed softening. Between these nucleated cells was a network of fine, shining, mostly connective-tissue, fibres. The nerve-fibres were few in number, and the large multipolar-ganglion-cells almost entirely absent. As a consequence of this atrophy of the anterior horns there was atrophy of the corresponding nerve-roots.

R. Barwell, "On Infantile Paralysis and its resulting Deformities," 'Lancet,' 1873, i, 125. Bohn, "Ein ferneres Beitrag zu den Nervenkrankeiten der Kinder," 'Jahrb. f. Kinderheilk.,' vii, 194.

### *Tetanus.*

Riegel ('Deut. Arch.,' xii, 399) publishes the case of a man, æt. 40, who in addition to the fatigues of war in Africa and Italy had been in the habit of eating bad and raw meat. He had "tetanic" attacks, which gradually became more frequent, showing themselves in the muscles of the extremities and trunk, the diaphragm or the bladder. These attacks could be brought on at once by compressing the large arteries and nerve trunks. The treatment consisted at first of warm baths and bromide of potassium; but microscopic examination of the fæces showed the presence of numerous eggs of *Tænia mediocanellata* with some of *Trichocephalus dispar*, and under remedies directed against the entozoa the attacks became less severe, and then entirely ceased. The paper contains a *résumé* of published cases of tetanus.

A. Muron publishes ('Gaz. Méd.,' 1873, 350) the results of his experiments relating to the cause of the elevation of temperature in tetanus. The experiments were made on dogs, in whose rectum, muscles, carotid artery, and external jugular vein, thermometers were placed. A solution of chlorohydrate of strychnine was then injected into their muscles, with the result, as was to be expected, of a rise of one or two degrees centigrade. The experiments were carried further to prove whether this rise was due to the influence of the poison on the nervous centres or to the asphyxia, both of which factors the experimenter excludes; finally, he brings himself to what he considers to be the logical conclusion to be drawn from established physiological facts, viz. that the essential cause of the heat produced in tetanus is due to the contraction of the muscles.

Oré ("De l'Anesthésie produite chez l'homme par les injections de chloral dans les veines," 'Compt. Rend.,' lxxviii, 575) injected a solution of 9 grammes of chloral in 10 grammes of water into one of the radial veins on the right side of a man, æt. 52, suffering from traumatic tetanus. The operation was followed by a deep sleep of eleven hours, during which time there was absolute cutaneous anæsthesia, and irritation of the conjunctiva excited no reflex movement. The injection was repeated

on two following days with the same results. The patient recovered. No inflammation of the vein occurred. Ten grammes are sufficient to paralyse completely the reflex irritation of the cord for hours.

Erb, "Zur Lehre von der Tetanie nebst Bemerkungen über die Prüfung der elektrischen Erregbarkeit motorischer Nerven," 'Arch. f. Psych.,' iv, 271. Simm, 'Ein Beitrag zur Lehre von der Tetanie,' Breslau, 1874, pp. 36. Kussmaul, "Ueber eine abortive Form des Tetanus," 'Deut. Arch.,' xi, 1. F. Schultze, "Ueber einige Fälle von Tetanie," 'Berl. Klin. Woch.,' 1874, 85. Bourgeois, "Note sur les cas de Tétanus observés pendant une pratique de plus de quarante années" (17 cases), 'Gaz. des Hôp.,' 1874, 732. Baizeau, "Tétanus traumatique aigu, mort en trente-six heurs, emploi de chloral et de la morphine," ib., 698. Bouchut, "Du Tétanus et de l'hydrate de chloral dans le traitement de cette maladie" (in children), ib., 1873, 362. W. K. Treves, "Case of Idiopathic Tetanus" (boy, æt. 13, recovery), 'Lancet,' 1874, i, 365. J. Cunningham, "Case of Traumatic Tetanus successfully treated by Calabar Bean," 'Brit. Med. Journ.,' 1874, i, 450. C. D. Allen, "Acute Tetanus ending in complete recovery," ib. ib. ib.

*Lead-poisoning.*

G. Gaffky ('Ueber den ursächlichen Zusammenhang zwischen chronischer Blei-intoxication und Nierenaffectionen,' Berlin, 1873, pp. 30), publishes a case of lead colic occurring in a woman employed in a paper factory, whose business it was to stamp paper patterns with a lead hammer. She suffered from albuminuria, which disappeared on an attack of colic, and from this fact he attempts to show that in chronic lead-poisoning there is some change in the vaso-motor nerves of the abdomen, especially in the fibres of the sympathetic of the splanchnic nerve, by means of which an albuminuria saturnina may be caused. He gives two other cases in which, in the course of chronic lead-poisoning, nephritis occurred without any appreciable cause, and inclines to the opinion that the former affection may be a predisposing cause of the latter.

M. Leidersdorf ('Wien. Med. Ztng.,' 1873, 561) records a case in which the same question finds a different illustration. A house-painter's assistant, a year previous to his death, had suffered from lead-colic. During life his urine was free from albumen, and though death occurred from convulsions and coma, his kidneys were found to be perfectly healthy, putting death from uræmia out of the question; in addition there was anæmia and œdema of the brain, without any change in its tissue or in the meninges. Lead was found in small quantities in the urine and the brain-substance.

Troisier and Lagrange ('Gaz. Méd.,' 1784, 62) give the history and microscopical examination of the brain, half the spinal cord, and the liver, of a tinman, æt. 46. The substance used by him in his work consisted of four parts tin and one part lead. He gave up work a year before his death, which occurred through some organic affection of the stomach, and during that time presented no symptoms of lead-poisoning, though a lead gum-line was visible to the last. The organs named were examined as described in the text; the brain contained a moderate quantity of lead, the liver only traces, and the cord, so far as it could be recognised, none.

O. Berger ("Ein Beitrag zur Lehre von der Encephalopathia saturnina," 'Berl. Klin. Woch.,' 1874, 122) gives the case of the wife of a

master-potter, aged 43. For years she had suffered from unilateral headache; she had aborted five times, had lost five children in infancy, and had had lead-colic four times. Her family, all engaged in pottery, were exposed to the vapours of lead, and almost all had at one time or other had symptoms of lead-poisoning, accompanied by cerebral disturbance of some kind or other (apoplexy, hemiplegia, &c.). The patient herself had hemiplegia, due, probably, to rupture of some cerebral vessel; and the writer thinks that a congenital tendency to brain mischief was combined here with a special affection of the brain arteries set up by the lead, to produce this rupture.

Some papers are included in the bibliography below with reference to the manner in which lead finds its way into drinking-water.

Elgnowski, 'Zur Casuistik der Bleilähmungen,' Berlin, 1873, pp. 32. Gombault, "Contribution à l'histoire anatomique de l'Atrophie musculaire saturnine," 'Arch. de Phys.,' v, 590. Bouchut, "Intoxication saturnine suivie de mort chez un Enfant de 8 jours, produite par l'Eau de Mme. Delacour, mise sur les gerçures du sein de la nourrice," 'Gaz. des Hôp.,' 1873, 5. "Intoxication saturnine locale" (revue), ib., 1874, 290. Crevaux, "Douze cas d'Empoisonment par le Plomb," ib. ib., 930. Malassez, "Recherches sur l'Anémie saturnine," 'Presse Méd. Belge,' 1874, 69. Manouvrier, 'Recherches cliniques sur l'Intoxication saturnine locale et directe, &c.,' Paris, 1874, pp. 86. Browne, "Notes on an extensive series of cases of Lead-Poisoning occurring at H.M. Dockyard at Devonport," 'Lancet,' 1873, ii, 147. Smith, "Functional Aphasia of six and a half years' duration, intercurrent Lead-Poisoning affecting the Arytenoideus, recovery under the use of Electricity and Iodide of Potassium," 'New York Med. Journ.,' xvii, 412. Siow, 'Ueber die Wirkung der Schwefelpräparate bei der chronischen Bleivergiftung,' Erlangen, 1873, pp. 21. Mayençon et Bergeret, "Recherches du Plomb dans les Secrétions," 'Lyon Méd.,' xii, 434. Bellgrand, "De l'action de l'Eau sur les conduites en plomb," 'Compt. Rend.,' lxxvii, 1055. Fordos, "Action de l'Eau aérée sur le Plomb, considerée au point de vue de l'hygiène et de la médecine légale," ib., 1099. Laval, "Sur l'emploi des tuyaux de Plomb pour la conduite des eaux potables," ib., 1271. Bobierre, "Sur les diverses conditions dans lesquelles le Plomb est attaqué par l'Eau," ib., 1272. Champouillon, "Sur l'emploi des tuyaux de Plomb pour la conduite et la distribution des Eaux destinées aux usages alimentaires," ib., 1270. v. Tunzelmann, "Cases of Poisoning by Lead in Drinking-water," 'Med. Times and Gaz.,' 1873, ii, 352.

### *Affections of the Sympathetic System.*

A. Otto gives ("Beitrag zur Pathologie des Sympathicus," 'Deut. Arch.,' xi, 609) the following:—A woman, previously healthy, was attacked with vomiting, headache, and vertigo. A fortnight later she presented marked redness of the left half of the face, neck, and chest, accompanied with dimness of vision, loss of memory, difficulty of speech, &c. All the symptoms, which the writer refers to an affection of the left sympathetic, disappeared under the employment of electricity.

A. Eulenburg ('Berlin. Klin. Woch.,' 1873, 169) records two cases in which he traces the symptoms to an affection of the same nerves. The first is that of a young man, æt. 26, who suffered from mydriasis and imperfect accommodation of the left eye, with periodic pains in the left forehead, accompanied by coldness and decreased temperature of the left ear as compared with the right. The glands on the inner border of the left sterno-cleido-mastoid were swollen, and probably pressed on the first cervical ganglion. The second case, that

of a young man also, is almost precisely similar. To this affection he gives the name Cephalalgia vaso-motoria.

J. F. Payne ('St. Thomas's Hosp. Rep.,' iii, 171) records a case of probable injury (during birth) to the sympathetic nerve in the neck, in a boy, aged fifteen months. A comparison of the two sides of the face, on the condition of which the diagnosis mainly rests, gave the following results:—On the right side, usually normal amount of vascularity; marked hyperæmia on excitement; secretion ordinarily excessive, and on excitement increased; normal size of palpebral opening; normal position and prominence of eye; pupil larger than left, but apparently quite normal; plump and elastic condition of skin and subcutaneous tissue. On the left side, permanent anæmia; no hyperæmia or excitement; lessened secretion of conjunctiva, nose, and sweat-glands, not increased on excitement; opening of eyelids smaller than normal, with apparent ptosis; eye sunken, and surrounded with lividity; pupil smaller than right, and apparently abnormally contracted; flabby and morbid appearance of skin and subcutaneous tissue. No difference could be perceived on the two sides in the development of the teeth, or the condition of the tongue, lips, or mouth. That of the hair was doubtful. He compares it with cases recorded by W. Ogle, and by Mitchell, Moorhouse, and Keen.

Feinberg ('Virch. Arch.,' lix, 270) has made experiments on the cause of death after covering the skin of animals with varnish, and considers that it is due to a general dilatation of the blood-vessels of the body, consequent on paralysis of the vaso-motor centres.

O. Berger ("Zur Pathogenese der Hemicranie," ib., 315) gives the case of a woman, æt. 45, in whom the hemicrania on the right side seems to have been caused by over-dilatation of the blood-vessels, due to paralysis of their muscular walls. There had been, in this case, pain on pressure over the first cervical ganglion on that side, and the pain was accompanied by right-sided ephidrosis and pupil-dilatation.

E. Fränkel, 'Zur Pathologie des Halssympathicus,' Breslau, 1874, pp. 38. A. R. Robinson, "Ueber die entzundlichen Veranderungen der Ganglienzellen des Sympathicus," 'Wien. Med. Jahrb.,' 1873, 438. A. Bidder, "Hypertrophie des Ohres nach excision eines Stückes von Halssympathicus des Kaninchens," 'Centralbl. f. Chir.,' 1874, No. 7. Carville and Bochefontaine, "De l'ablation du Ganglion premier thoracique du Grand Sympathique chez le Chien," 'Gaz. Méd.,' 1874, 157. W. Cuntz, "Ein Beitrag zur Pathologie der Vasomotorischen Nerven," 'Arch. d. Heilk.,' xv, 63. H. Emminghaus, "Ueber Halbseitigen Gesichtsatrophie," 'Deut. Arch.,' xi, 96. H. Frémy, "La Trophonévrose faciale," 'Gaz. des Hôp.,' 1873, 401. Sigerson, 'Note sur la Paralysie vasomotrice généralisée des Membres supérieurs,' Paris, 1874, pp. 19. Lubimoff, "Beiträge zur Histologie und pathologischen Anatomie des Sympathischen Nervensystems," 'Virch Arch.,' lxi, 145.

The following papers deal with cases of unascertained or general nervous disorders, or with special forms not noticed in the preceding pages:

Gull, "On a Cretinoid State supervening in Adult Life in Women," 'Clin. Soc. Trans.,' vii, 180. C. H. Jones, "Cases of Obscure Nerve Disorder," 'Med. Times and Gaz.,' 1874, ii, 230, &c. Stewart, "On some cases of Nervous Disease accompanied by Muscular Twitching," ib. ib., 227, 357. Allan, "Case of severe Vertigo," ib., i, 126. Anderson, "Gastric and Cerebral Vomiting," 'Lancet,' 1874, ii, 577. L. Clarke, "Nervous

Disorder from Constipation, relief by purgatives" (woman, æt. 28), 'Brit. Med Journ.,' 1874, ii, 173. Gowers, "Cases of Convulsion from Organic Brain Disease," ib. ib., 398. Brunton, "On Inhibition, Peripheral and Central," 'West Riding Lun. Asyl. Rep.,' iv, 179. Crichton Browne, "On Acute Dementia," ib. ib., 265. Morson, "The Urinology of General Paralysis," ib. ib., 63. Meyer, "Die pathologische Anatomie der Dementia Paralytica," 'Virch. Arch.,' lviii, 270. Lubinoff, "Studien über die Veränderungen des geweblichen Gehirnbaues und deren Hergang bei der progessiven Paralyse der Irren," ib., lvii, 371. Voisin and Hanot, "Sur deux cas d'Atrophie musculaire observée dans le cours de la Paralysie générale," 'Gaz. Méd.,' 1874, 136. Mercer, "On General Paralysis and Fragilitas Ossium," 'Brit. Med. Journ.,' 1874, i, 540. Lockhart Clarke, "A case of Mania, with Atrophy of the Brain, &c." (female, æt. 76, autopsy), ib. ib., 739. Christian, "De la Folie consécutive aux maladies aigues," 'Arch. Gén.,' xxii, 421. Bärwinkel, "Neuropathologische Beiträge [three cases]; Atrophia neurotica faciei; Diplegia N. trigemini motoria; Ophthalmia neuroparalytica," 'Deut. Arch.,' xii, 606. Dalby, "Wound of the Portio Dura causing Facial Palsy" (man, æt. 40), 'Clin. Soc. Trans.,' vi, 67. G. M. Smith, "Case of Facial Paralysis," 'New York Med. Journ.,' xviii, 56. Gowers, "Notes on Facial Paralysis," 'Lancet,' 1874, i, 507. Stewart, "Paralysis and Numbness of the Lower, and to a less extent of the Upper, Extremities" (man, æt. 45), 'Brit. Med. Journ.,' 1874, ii, 775. Westphal, "Ueber eine Erscheinung an gelähmten Gliedern," 'Berl. Klin. Woch.,' 1873, 309. Alyschewsky, "Ueber die künstliche Lähmung des Zwerchfells," ib., 1874, 432. Guttmann, "Zur Kenntniss der Vaguslahmung beim Menschen," 'Virch. Arch.,' lix, 51. C. H. Jones, "On a case of Paralysis of the Diaphragm," 'Brit. Med. Journ.,' 1873, i, 606. Vulpian, "Étude sur un cas de Paralysie du Nerf radial à frigore," 'Gaz. des Hôp.,' 1873, 354. Chapoy, 'De la Paralysie du Nerf radial,' Paris, 1874, pp. 116. Runge, "Zur Genese und Behandlung des Schreibekrampfes," 'Berl. Klin. Woch.,' 1873, 245. Beard, "Incipient Writer's Cramp in an Editor, profound local anæsthesia, rapid relief under localised faradization and galvanization of the spine and sympathetic," 'New York Med. Journ.,' xix, 397. Stich, "Zwei Fälle von Schusterkrampf," 'Deut. Arch.,' xi, 528. Id., "Zwei Fälle von Krampf im Bereich des Nervens Accessorius Willisii," ib., 524. Runge, "Electrische Beiträge," ib., xiii, 345. Obersteiner, "Ueber eine neue einfache Methode zur Bestimmung der psychischen Leistungsfähigkeit des Gehirnes Geisteskranker," 'Virch. Arch.,' lix, 427. Bernstein, "Ueber den Electrotonus und die innere Mechanik der Nerven," 'Pflüger's Arch.,' 1874, viii, 40. Hermann, "Experimentelles und Kritisches über den Electrotonus," ib., 258 (to which the former replies, ib., 498). Heubach, "Einwirkungen des Chinins auf das Nervensystem," 'Centrabl.,' 1874, 673.

## C. Diseases of the Respiratory System.

### *Œdema Glottidis, Laryngismus, &c.*

G. v. Hoffman ('Ueber Œdema Glottidis,' Berlin, 1873, p. 44) has looked through the post-mortem records of the Charité at Berlin, and has found notes of thirty-two cases of œdema glottidis out of the 6062 autopsies made in the three years 1869-71. In ten of these there was some local affection of the larynx.

B. Wagner ('Arch. d. Heilk.,' xiv, 92) describes the case of a man, æt. 62, in whom sudden pain in the neck and inability to swallow was caussd by an abscess, the size of a hazel-nut, in the left aryteno-epiglottidean fold. For five weeks the patient was fed by means of a stomach tube, and ultimately recovered.

W. Stephenson gives ('Edin. Journ.,' xix, 312) three cases of abscess of the larynx simulating croup in three girls, æt. 4, 2, and 1½ years. The first had had scarlet fever three weeks before, and had great dyspnœa, cough without clanging, and difficult deglutition; she had frequent

suffocating attacks, and died of exhaustion four days after admission. Post-mortem, a small abscess was found at the outer side of the right thyroid cartilage, laying bare the upper margin, and extending to the superior cornua. It had opened externally, and after that had taken place the suffocative attacks were less frequent. In the second case a small swelling was detected immediately below the thyroid cartilage; this was opened and over four drachms of pus escaped. This patient died also of exhaustion, and the pus-containing sac was found to extend upwards on both sides to the upper margin of the alæ of the cartilage, the pouch on the right side being somewhat larger than the left. There was no necrosis of the cartilages. In the third case, which recovered, an abscess was opened about the level of the isthmus of the thyroid and at the outer margin of the sterno-hyoid, extending downwards nearly three inches.[1] In a postscript to this paper the writer quotes a paper on "Abscess of the Larynx in Young Children," by J. S. Parry ('Philadelph. Med. Trans.,' June 14, 1873), in which two cases of the same kind are recorded, in children aged 4½ months and 9 weeks. In addition to laryngeal stridor and difficulty of swallowing, the larynx in both was thrust forward so as to form a decided prominence in the neck. The first case recovered after letting out the pus; the second died, without any operation, and an abscess was found on both sides of the thyroid cartilage, meeting in front. In some remarks on the subject the author considers the most important diagnostic points to be the following:—1. The affection is more gradual in its onset and does not endanger life so rapidly as croup. 2. Difficulty in swallowing is in most cases present, and attempts to take food are followed by increased dyspnœa. 3. Change of posture, especially the horizontal position, aggravates the dyspnœa. 4. The cough is low and hoarse and has not the clanging brassy sound of the early stage of croup.

Passot, "Œdème de la Glotte, imminence de mort, trachéotomie, guérison," 'Lyon Méd.,' xiii, 436. Bouchut, "Spasme de la Glotte précurseur de rougeole, emploi du musc, morte subite" (boy, æt. 23 months), 'Gaz. des Hôp.,' 1874, 218. Penzoldt, "Ueber die Paralyse der Glottiserweiterer" (two cases), 'Deut. Arch.,' xiii, 107. Raymond and Longuet, "Sarcome d'une des Cordes vocales, mort rapide avec symptômes de congestion cérébrale," 'Presse Méd. Belge, 1874, 158. Watson, "On some of the Nervous Affections of the Larynx," 'Glasg. Journ.,' n. s., vi, 19. Navratil, "Zur Casuistik der Kehlkopfneubildungen," 'Wien. Med. Woch.,' 1874, No. 8. Gerhardt, "Laryngologische Beiträge," 'Deut. Arch.,' xi, 575. Libermann, "Note sur un cas d'Arthrite blennorhagique, probable du larynx" (soldier, æt. 26), 'Union Méd.,' xvi, 971. Id., "Note pour servir à l'histoire des Arthrites du Larynx," ib., 997. Fränkel, "Laryngitis hæmorrhagica," 'Berl. Klin. Woch.,' 1874, 16. Demarquay, "Deux Observations de Compression de la Trachée par les Tumeurs du Corps thyroïde" (man, æt. 56, epithelioma, death; man, æt. 58, suppuration of thyroid, death), 'Gaz. des Hôp.,' 1874, 108. Krishaber, "Mort subite chez un Enfant opéré de la trachéotomie, depuis trois mois, autopsie, végétation de la trachée," ib., 667. Simon, "Angeborene Adenome der Luftröhrsschleimhaut beim Tiger," 'Virch. Arch.,' lvii, 537. Cooke, "Case of primary Scirrhous Cancer of the Larynx, Tracheotomy," 'Lancet,' 1874, ii, 412. Thompson, "Clinical Lecture on a case of Perforation of the Trachea by an enlarged and caseous Gland" (boy, æt. 4), 'Med. Times and Gaz.,' 1874, i, 91. Coupland, similar case, 'Path. Soc. Trans.,' xxv, 29 (and see cases of tracheal and laryngeal affections in same vol.).

[1] I have seen a case of this kind in a young child in which the autopsy showed the bronchial glands to be the starting-point of suppuration.—A. B. S.

*Diphtheria and Croup.*

H. Rothe ('De Natura Diphtheridis,' Berlin, 1873) looks upon croup as an intensified catarrh, from which diphtheria is never developed without the influence of some specific poison. On the other hand, diphtheria itself is both anatomically and clinically a distinct affection, always originating in the same specific cause. At its commencement it is a local process, and in some cases may remain so throughout its course, though in the majority of cases it becomes a general constitutional affection.

Caspari ("Croup oder Pseudocroup," 'Deut. Klin.,' 1873, 186) warmly opposes Kuster's views on the question (see 'Berl. Klin. Woch.,' 1872, Nos. 18, 19), especially his theory that false croup comes on without any prodromata, while true croup is preceded by pains in the throat, head, limbs, &c. He holds that the best clinical observers must distinguish two types of croup, the one sudden in its attack, the other developed gradually. He mentions incidentally that the Scotch word croup is applied to the white deposit on the tongue in fowls suffering from the pip.

Zum Sande writes ('Berl. Klin. Woch.,' 1873, 315) on certain etiological relations of diphtheria to other diseases. He gives a number of cases in which diphtheria was complicated with scarlet fever, the contagion of which set up diphtheria in other persons. He relates in full the course of several successive infections in the members of a large family. Some were attacked by diphtheria only; in others a scarlet fever eruption, followed by desquamation, broke out on the eighth day of the former affection. He does not think these were cases of scarlatina in the ordinary sense of the word, inasmuch as the eruption did not precede, but broke out eight days after, the pharyngeal diphtheria, and the contagion of the patients who presented this eruption set up a fresh simple diphtheria.

A. Martin records ('Gaz. des Hôp.,' 1873, 733) the following as bearing on the contagion of the disease. A child, æt. 2½ years, was attacked with diphtheria of the vulva, fauces, and larynx, and died in three days. A pregnant woman, æt. 38, who had suffered from subacute laryngitis for a month, helped to nurse the child. Two days after the death of the latter the laryngitis became worse, and in three days she died of laryngeal diphtheria without any signs of deposit in the fauces. The existence of the simple catarrhal laryngitis determined the diphtheritic infection to the weakened organ.

F. Mosler ("Ueber Collapsus nach Diphtherie," 'Arch. d. Heilk.,' xiv, 61) holds that diphtheria belongs to the category of diseases in which there is a tendency to collapse in consequence of the poison. In the two cases which he gives he found fatty degeneration of the muscle of the heart. The first was that of a girl of fifteen, in whom the diphtheritic process went on to destruction of the soft tissues of the pharynx. On the eleventh day there was paresis of the velum and the lower extremities, and sudden collapse on the fifteenth day. Transfusion was tried without success. In addition to the fatty change the autopsy showed great dilatation of the heart and partial aneurism at

the apex of the left ventricle. The second case was that of a boy of eight, who during convalescence from diphtheria was seized with prostration, vomiting, and ultimately collapse. Here again the heart was found dilated and degenerated. He insists that the treatment of the disease as one of infection, not of inflammation, should be a tonic, not an antiphlogistic one.

Henoch ('Berl. Klin. Woch.,' 1873, 213) also contributes a paper on sudden death after diphtheria. A girl, æt. 9, had high fever with extensive deposit of diphtheritic membrane on the fauces, but recovered rapidly under the use of ice and chlorate of potash, and by gargling alternately with tannic acid and lime-water. A week after the commencement of the affection she had epistaxis, and the urine contained albumen, which disappeared later. On the sixteenth day the pulse rose in frequency without any apparent reason, and in the evening there was sudden vomiting and coldness of the extremities, followed by death. No autopsy was made. He refers to Guerlier's views on thrombosis in these cases, and to Mosler's paper as above. In the discussion which followed Henoch's paper Senator stated his belief that the explanation of the sudden death in these is to be found in some affection of the vagus, as shown in the loss of appetite and increased pulse frequency which precedes death.

P. Guttmann holds a somewhat similar view to Senator's. He records ('Virch. Arch.,' lix, 51) a case of diphtheria in which paralysis of other nerves was accompanied, he thinks, by paralysis of the pulmonary and cardiac branches of the pneumogastric. In addition to the nervine symptoms usually observed after diphtheria there was great dyspnœa, with slow respiration and increased pulse-rate, phenomena observed in animals after section of the nerve. He thinks that in this case the paralysis was central.

L. Letzerich, after criticising ('Berl. Klin. Woch.,' 1873, 139) the various methods of treatment in diphtheria, holds that the one cardinal point of the whole is the mechanical removal of the exudation either with sponges or with pieces of linen dipped in alum solution and rolled round the index finger. The ulcerated surface is afterwards to be pencilled with a solution of nitrate of silver. Flowers of sulphur are useless as a drug.

The exact reverse of the last sentence is stated by E. Seligson ('Deut. Klin.,' 1873, 433). He gives an account of his treatment of 103 cases of diphtheria in eleven years, which he divides into two periods, one before and the other after 1869. In the former he cauterized his patients with lunar caustic, and employed chlorate of potash in gargles, and lime-water as inhalations or local applications. In the latter period he used solutions of perchloride of iron and flowers of sulphur, and finds that the mortality of his cases has fallen from 19 to 5 per cent.

Johannet ('Gaz. Hebd.,' 1873, 431) holds that as long as gargling is properly and diligently done it does not matter what fluid is used. He lets his diphtheritic patients get up and makes them continually, day and night, gargle with cold water, raspberry water, milk, or solution of alum. The fever and sore throat are lessened in a few hours. If the patient can only swallow he is to eat whatever he likes, and to

take every hour a table-spoonful of solution of chloride of iron (6 grm. in 200 grm. water). Frequent washing of the affected parts with warm water is sometimes sufficient. In the case of children he uses a syringe in the place of the gargles. Under this treatment he has lost only two out of thirty patients, and these two only because his directions were not fully carried out.

Lolli ('Gaz. Med. Lombard.,' 1873, 82) is particularly fortunate with his patients; he uses no caustics, nor does he bleed; he feeds them well and gets their skin to act, and he gives them a mixture containing perchloride of iron and lime-water. Under this plan the mortality is at the most, through complications or imperfect treatment, 2 per cent.; the average duration of the disease is eight days; there was no extension of the mischief to the respiratory passages, and extremely few secondary affections, such as paralysis, inflammation of the joints, or dropsy.

Kühn ('Berl. Klin. Woch.,' 1873, 65) employs ice and inhalations of lime-water, pencils the affected parts with carbolic acid or nitrate of silver, and gives internally carbonate of potash. He attempts by this means to modify the condition of the mucous membrane as to make it unfit for any further development of the specific fungus. Only four cases out of 72 treated in this manner terminated fatally.

Binder ('Wien. Med. Woch.,' 1873, No. 33) writes on the existence of diphtheria in Moldavia and Wallachia. It has prevailed there since 1869, and in 1870 extended to the south-east frontier of Transylvania. It next spread, in 1872, to Schärrburg and to Herrmannstadt, where it attacked 158 persons. Between December 7, 1872, and March 19, 1873, 30 caught the affection in Agnetheln, of whom 18 died. Binder describes the precautions taken to stay its further extension. In addition to public sanitary measures the rooms were disinfected with wood-smoke, and those about the patient were ordered to use gargles of decoction of oakbark and spirits of wine. Nineteen persons who did not use the gargle were attacked and 13 died, while of six who was attacked after using this means not one died. After March 19 sixteen more cases occurred in Agnetheln, with death in six only, and this good result he ascribes to the use, in these later cases, of lime-water in the form of inhalation.

J. G. Ehrhardt, in a paper on "Tracheotomy in Membranous Croup and in Diphtheria" ('Amer. Journ. Med. Sci.,' lxv, 421), gives notes of the cases of four boys, aged 4½, 5, 2, and 5 years respectively. The second patient died from broncho-pneumonia four days after the operation; in the third the tracheotomy was too late to save life; the first wore the canula for fourteen days, and after an attack of dyspnœa following closure of the wound, ultimately recovered; in the fourth case, which also recovered, the canula was removed on the eleventh day.

C. J. Eberth, "Die diphtherischen Processe," 'Centralblt.,' 1873, 113. Id., "Zur Kenntniss der Wunddiphtherie," ib., 291. Larue, "Paraplégie diphthérique" (girl, æt. 4, recovery), 'Gaz. des Hôp.,' 1873, 74. Camuset, "Cas de Paralysie de l'accommodation de l'Œil suite d'Angine diphthéritique," ib., 1874, 209. Headland, "A case of Diphtheritic Paralysis" (boy, æt. 19, recovery), 'Lancet,' 1873, i, 200. Cormack,

"Diphtheritic Paralysis, its material course, pathology, treatment, and relation to paralytic affections," 'Brit. Med. Journ.,' 1874, ii, 487. Eberth, 'Ueber diphtheritische Endocarditis," 'Virch. Arch.,' lvii, 228. Bouchut, 'Des Infarctus pulmonaires et des abcès métastatiques dans la Diphthérite et dans le Croup" (girl, æt. 3, tracheotomy, death, autopsy), 'Gaz. des Hôp.,' 1874, 497. Thursfield, "The Connection of Diphtheria with Local Unsanitary Conditions," 'Brit. Med. Journ.,' 1873, ii, 655. Highet, "Three cases of Diphtheria occurring within a radius of 100 yards, cause distinctly traced to one spot" (a dunghill), 'Med. Times and Gaz.,' 1874, ii, 420. Semple, "On Diphtheria, with special reference to a recent Epidemic in Italy," ib., 1873, ii, 546. Id., "What is Diphtheria?" 'Lancet,' 1873, ii, 904. Hogg, "Diphtheritic Conjunctivitis, general and special histological characters of the Diphtheritic Membrane and Croupous Cast," ib., i, 371. Streatfield, "Diphtheritic Conjunctivitis, Sloughing of the Corneæ, recovery" (child, æt. 3 weeks), ib., ii, 10. Murchison, "Diphtheria, Tracheotomy, high temperature, death" (girl, æt. 1½, highest temperature three hours before death 107·8°, autopsy), ib., ii, 771. Anelli, "Intorno alle Difterite," 'Ann. Univ.,' ccxxiii, 542. Ayr, "Osservationi teoro-cliniche sulla infezione difterica, sua forma morbosa e terapia," ib., 16, 299. Nelson, "Forty cases of Diphtheria treated by local application of Sulphate of Iron," 'New York Med. Journ.,' xix, 54. "Diphtheria-like Membrane in Dovehouse Pigeons," 'Path. Soc. Trans.,' xxv, 282. Letzerich, "Die Entwickelung des Diphtheriepilzes" (with plate), 'Virch. Arch.,' lviii, 303. Bouchut, "De la Suffocation par Végétations de la Trachée après la Trachéotomie" (in croup), 'Gaz. des Hôp.,' 1874, 275. Watelst, "Croup bronchique chez un Enfant de quatorze ans, trachéotomie, aspiration des fausses membranes à l'aide de la sonde-bougie à bout coupé, guérison," ib., 737. Espinouse, "Croup traité par l'Émétique," ib., 852. Calvet, "Mort subite plusieurs mois après l'opération de la Trachéotomie" (for croup, in girl, æt. 8, no autopsy), ib., 389. Fournier, "À propos d'un cas de Mort par Suffocation plusieurs mois après l'opération de la Trachéotomie" (in reference to Calvet's case), ib., 396. Emerson, "Tracheotomy in a case of Membranous Croup, recovery" (boy, æt. 2½), 'New York Med. Journ.,' xvii, 508. Oertel, "Ueber künstlichen Croup," 'Deut. Arch." xiv, 202.

*General papers on Pulmonary Pathology.*

H. Nothnagel ('Centralbl.,' 1874, 209) has produced results analogous to those obtained by Brown-Séquard (see last 'Report,' 108). After injuring, even with a needle, a certain point on the upper surface of the brain in rabbits, he finds, as a special change among several others, hæmorrhages in the lungs, sometimes so intense that the whole lung-tissue is almost filled with blood.

Jehn (ib., 340) refers, in connection with the above paper, to the extensive exudations of blood into the alveoli in lunatics, which appear to be due to diapedesis. In five autopsies (one case of melancholia, one of mania, three of paralysis) there were found in both lungs extravasations of bright red, apparently purely arterial blood, some disseminated, others covering large portions, and in one case, with the exception of a few normal islets, universal. Portions of the affected parts floated beneath water. The bronchi were free. The microscope showed the alveoli almost completely filled with red blood-corpuscles. There were no changes in the vessels or the lung-tissue itself. The brain in these cases showed sometimes no change, in others old and recent meningitis, diffused redness of several convolutions, and in two cases capillary apoplexies of the cortical substance. During life there were no symptoms of any affection of the lungs.

A. Ollivier ("De l'Apoplexie pulmonaire unilatérale dans ses rapports avec l'Hémorrhagie cérébrale," 'Arch. Gén.,' xxii, 167) gives three

clinical cases of cerebral hæmorrhage, illustrating Brown-Séquard's researches, in which the lung of the opposite and hemiplegic side showed apoplexy, congestion, and subpleural ecchymoses. He agrees with Brown-Séquard's view that the exudation is due to increased blood pressure and rupture of the capillary wall, following a sudden innervation and contraction of the smaller arteries and veins; and he apparently accepts Schiff's (and more particularly Brown-Séquard's) conclusion that the path of this innervation is along the fibres which pass down the cord to the superior thoracic ganglion. (And cf. with this paper the cases given by Barétry and Laboulbène, as well as by Ollivier himself, 'Gaz. Méd.,' 1873, 413, 415.)

Hughlings-Jackson, "Pulmonary Apoplexies (hæmorrhagic infarctions) in cases of Cerebral Apoplexy" (caused, according to him, by emboli in the pulmonary arteries, due to the impeded circulation), 'Brit. Med. Journ.,' 1873, ii, 483. Chabenat, 'De la Mort subite par Embolie pulmonaire dans les varices enflammés,' Paris, 1874, pp. 68. Filehne, 'Das Cheyne-Stokes'sche Athmungsphänomen,' Erlangen, 1874, pp. 41. Id., on same, 'Berl. Klin. Woch.,' 1874, 152. Traube, "Zur Theorie des Cheyne-Stokes'-chen Athmungsphänomens," ib., 185. Bischoff, "Ein Fall enorm gesteigerten Respirations-frequenz, &c.," 'Deut. Arch.,' xii, 262. Laycock, "On the Recurrent Brief Apnœa or Ascending and Descending Respiration in cases of Cardiac Disease," 'Dubl. Journ.,' lvi, 1. Nussbaum, "Forgesetzte Untersuchungen über die Athmung der Lunge," 'Pflüger's Arch.,' vii, 296. Riegel, 'Die Athembewegungen,' Wurzburg, 1873, pp. 176. Ransome, "On the Respiratory Movements in Man, with an account of a new instrument for measuring the movements of the chest," 'Med.-Chir. Trans.,' lvi, 61. Id., "On the Graphical Representation of the Movements of the Chest-wall in Respiration," 'Brit. Med. Journ.,' 1874, i, 270. Id., "On the Constrictor Action of the Intercostal Muscles," ib. ib., 833. Baas, "Phonometrische Untersuchung der Brust und des Unterleibes im gesunden und kranken Zustande," 'Deut. Arch.,' xi, 9. Eichörst, "Ueber die Pneumatometrie und ihre Anwendung fur die Diagnostik der Lungenkrankheiten," ib., 268. Riegel, "Ueber graphische Darstellung der Athembewegungen," ib., 379. C. J. B. Williams, "On the Acoustic Principles and Construction of Stethoscopes and Ear-Trumpets," 'Med.-Chir. Trans.,' lvii, 21. Spencer, "On a new form of Stethoscope in its relations to the theory and practice of Auscultation," 'Brit. Med. Journ.,' 1874, i, 409. Eichhorst and Jacobson, "Zur Analyse der Auscultations- und Percussions-Erscheinungen," 'Centralbl.,' 1873, 257. Baas, "Ueber den auf 'Relaxation' des Lungengewebes innerhalb der geschlossenen Brüsthöhle stark resonirenden Schall," 'Deut. Arch.,' xiii, 157. Sturges, "A Note on the Mode of Production of Crepitant Rhonchus," 'Lancet,' 1874, i, 828. Mayer, "Ueber die Morphologischen Veränderungen in Trachea und Lungen durch Ammoniak," 'Arch. d. Heilk.,' xiv, 512. Roch, "Ueber die Veränderungen welche gewisse Mechanische und Chemische Reize im Lungen-parenchym hevorbringen," 'Arch. f. Klin. Chir.,' xv, 706. V. Wittich and Gensmer, "Ueber die nach Durchschneidung beider Vagi Auftreten pathologischen Veränderungen der Lungen," 'Berl. Klin. Woch.,' 1873, 577. Filehne, "Ueber Apnoe und die Wirkung eines energischen Kohlensäurestromes auf die Schleim-häute des Respirations-apparates und uber den Einfluss Beider auf verschiedene Krampfformen," 'Archiv f. Anatomie &c.,' 1873, 361. Pulling, "Respiration as affected by Conditions of the Atmosphere," 'New York Med. Journ.,' xviii, 165. De Morgan, "The Medical Value of Arterial Pressure" (in diseases of the chest), 'Lancet,' 1873, ii, 413. Högyes, "Ueber das Bunsen'sche Wassertrommelgebläse, als Künstlichen Athmungsapparat zur Ausgleichung der Athmungsinsufficienzen," 'Centralbl.,' 1874, 161. Waldenburg, "On a portable Pneumatic Apparatus for the Mechanical Treatment of Diseases of the Lungs and Heart," 'Brit. Med. Journ.,' 1874, i, 477. G. Johnson, "On the Relation between Laryngeal and Pulmonary Diseases," ib. ib., 102. Flesch, "Ueber ein seltene Missbildung des Thorax," 'Virch. Arch.,' lvii, 289. F. Schultze, "Ueber das Vorkommen reichlicher Mengen von Hämatoidinkrystallen in den Sputis," ib., lxi, 130. Kohts, "Experimentelle Untersuchungen über den Husten," ib., lx, 191.

*Mediastinal Growths.*

W. H. Dickinson ('Path. Soc. Trans.,' xxiv, 33) records the case of a gentleman, æt. 64, in whom fits of extreme dyspnœa, and death from exhaustion, were due to the compression of the right bronchus by a lymphoid growth. The autopsy showed a firm lobulated tumour, circumscribed and rounded, lying in front of the trachea, immediately above its bifurcation. It was somewhat flattened upon the trachea, embracing about a third of its circumference, reaching further to the right than the left. It measured 2 in. vertically, 1½ in. horizontally, and 1 in. in the antero-posterior direction. Behind the trachea and right bronchus, which they had flattened, were masses of enlarged and altered glands, the larger of the size of chestnuts. A general diffused thickening was found about the bifurcation, and densely surrounding the right bronchus, the calibre of which was reduced by the different growths to a mere slit, which would have been nearly filled by a sixpence passed edgeways. The growths presented microscopically the ordinary characters of lymphadenoma.

C. T. Williams (ib., 23) gives a case resembling the last in its clinical aspects, differing mainly in the nature of the growth. The subject was a waiter, æt. 41, who died at last from exhaustion. On removing the sternum a hard nodulated mass was found about 3 inches laterally and vertically, involving the bronchial glands, the lower portion of the trachea, the right and partially the left bronchus, as well as the arch of the aorta and œsophagus. The growth had apparently infiltrated the organs in its neighbourhood. At the lower end of the tracheal mucous membrane was a commencing ulcer, connected with the tumour. The right bronchus was considerably, the left only slightly, contracted; the mucous membrane was invaded by villous-like outgrowths of the tumour. The secondary and tertiary bronchi of the right lung, especially in its lower lobe, were greatly dilated. The cervical glands on the left side were enlarged and indurated. The other organs were healthy. Microscopically the tumour seemed to be a form of soft carcinoma very different from the lymphoid growth usually met with in the mediastinum.

Gueneau de Mussy gives ('Gaz. Hebd.,' x, 330) some new facts in relation to bronchial adenopathy (see last 'Report,' p. 110). As the cases recovered, no proof of the original mischief exists, and the treatment to a very large extent consisted in the administration of the waters of La Bourboule. The clinical symptoms of the affection are sketched in a paper read before the British Association ('Brit. Med. Jour.,' 1873, ii, 536).

D. Powell relates ('Brit. Med. Jour.,' 1873, i, 102) the occurrence of a large lymphomatous growth in the posterior mediastinum of a man, æt. 29, which invaded the left lung, consolidated the lower lobe and the inferior four fifths of the upper lobe, pushed the heart over to the right side, and involved the left auricle. The glands of the posterior mediastinum were the only ones attacked.

Ransom (ib. ib., 199) records a similar case in a man, æt. 28. The clinical symptoms given are in no way exceptional. On removing

the sternum a large nodular growth, having the appearance of encephaloid, was found occupying the anterior mediastinum, situated immediately behind the manubrium, which had not suffered erosion. Laterally the growth was bounded by the lungs, the roots of which it partially enveloped; inferiorly by the heart, the pericardium of which it had invaded, appearing upon the internal surface, where it was reflected over the great vessels; included in its substance were both innominate veins and the descending cava. The superior cava had an available calibre of not more than a quarter of an inch in diameter. The walls of these veins were infiltrated, and masses of a whitish substance, not unlike very soft encephaloid, nearly filled the cava and projected into the right auricle (the writer allows that these may have been clot, as they were not examined microscopically). The pulmonary artery, the aorta and its primary branches, the trachea and œsophagus, were all slightly compressed, but not invaded. The right lung, filled with bloody serum, showed numerous cancerous patches, as did also the left, but to a less extent.

C. Terry publishes (ib., ii, 60) what he considers to be a case of mediastinal abscess opening into a bronchus. The patient was a coachman, æt. 58, who, being apparently in perfect health, was suddenly attacked by symptoms of suffocation; at this time there was crepitation over the whole chest, lividity, and the signs of collapse. After bringing up a large amount of pus, the crepitation disappeared and the patient rapidly got well.

Lasègue ('Arch. Gén.' xxiii., 486) gives the case of a man, æt. 49, in whom a right-sided pleurisy was the consequence of lympho-sarcoma of the bronchial glands, which were enormously enlarged and had compressed the right bronchus. The same growth was found in the liver, which was large, and along the course of the large and small bronchi. The writer suggests that the starting-point of the affection was on the surface of the right pleura. The course of the disease was very rapid, extending only from December 8, 1872, to February 16, 1873.

T. C. Allbutt contributes ('Brit. Med. Jour.' 1874, ii, 300,) a case of mediastinal sarcoma, simulating "callous, mediastino-pericarditis" (Kussmaul).[1] The patient was a girl, æt. 16, who had been perfectly well up to about four months before her admission into hospital, when she "caught cold." Her breathing became short, and latterly she had been unable to lie down on account of great dyspnœa and palpitation. She never complained of pain. The superficial veins of the neck were prominent; the aspect was one of distress. Taking the base line of dulness from the lower edge of the liver and heart, it extended upwards all over the front of the chest, leaving only a triangle of resonance on each side, the outer two thirds of each clavicle being taken as the upper side of such equilateral triangle. The dulness reached about an inch beyond the mammary line on each side. On the left side there was in addition to and continuous with this dulness another dull portion corresponding to a small pleuritic effusion. This was tapped and fourteen ounces of clear fluid removed, but the patient died fifteen minutes after the operation. There was found to be enormous dilata-

[1] See abstract of Kussmaul's paper under "Pericarditis."—A. B. S.

tion and thickening of the pericardium, due to a firm, yellowish, homogeneous-looking growth, occupying the anterior mediastinum and reaching above to the thyroid on the left and to the diaphragm below on the right. The chief mass of the tumour was situated in front of and around the base of the heart, completely embedding the great vessels at the root of the neck and the arch of the aorta, and closely adherent to them, but apparently not lessening their calibre. The tumour blended insensibly with the pericardium, and was adherent anteriorly to the sternum, &c. Several nodules of the new growth had infiltrated the muscular tissue of the heart, different parts of the lungs, and the diaphragm. The lungs were displaced laterally, and airless except at their apices. The microscopic appearance of the growth from the different parts was that of small round cells, without any fibrous stroma.

Bourgeois, "Compression des deux Nerfs recurrents par un Tumeur ayant déterminé une Mort presque subite" (probably remains of thymus, in boy, æt. 15), 'Gaz. des Hôp.,' 1874, 490. G. C. Franklin, 1, "Malignant Tumour of Mediastinum, Cyanosis and severe Dyspnœa, relieved by bleeding, death" (man, æt. 33, sarcoma); 2, "Malignant Tumour of Mediastinum involving right lung, cyanosis, urgent dyspnœa relieved by bleeding, death" (man, æt. 33, autopsy), 'Med. Times and Gaz.,' 1874, ii, 495. Id., "Bronchitis, Schirrhous Tumour in Thorax, death" (man, æt. 37), ib. ib., 549. Greenhow, "Case of Mediastinal Tumour simulating Chronic Phthisis" (man, æt. 42, lymphadenoma), ib. ib., 578. Charteris, "On Intrathoracic Cancer" (man, æt. 54, autopsy), 'Lancet,' 1874, ii, 583. Clapton, "Mediastinal Tumour" (man, æt. 37, lymphadenoma ?), ib. ib., 835. Bradbury, "Case of Mediastinal Sarcoma, Bloody Pleurisy, &c., Paracentesis Thoracis, death, necropsy" (man, æt. 22), 'Brit. Med. Journ.,' 1874, ii, 363.

## *Pleurisy, &c.*

Cayley and Sansom give ('Med. Times and Gaz.,' 1874, i, 644, and ii, 35) the following cases of effusion in which the pneumatic aspirator was employed:—1. Girl, æt. 8, effusion on left side, paracentesis, recovery. 2. Boy, æt. 4, empyema of left side, paracentesis repeated four times, with establishment of fistulous openings; later, enlargement of spleen and liver, with albuminuria. 3. Girl, æt. 3¾, empyema of left side, paracentesis repeated once, recovery. 4. Girl æt. 2½, empyema of right side, paracentesis, recovery. 5. Boy, æt. 3 years, empyema of left side, paracentesis, apparent recovery, relapse, paracentesis repeated with relief, subsequent and sudden death after leaving the hospital. 6. Boy, æt. 4, empyema of left side, paracentesis on two occasions, recovery. 7. Boy, æt. 10½, pleurisy, evacuation of 32 ounces of serum, convalescence in seven days. 8. Girl, æt. 2. In this case the diagnosis was somewhat doubtful and the child was not tapped, but after death the left pleural cavity was found full of thick, non-fetid pus (about 24 ounces), the right pleural cavity also contained about six ounces of pus. 9. Boy, æt. 9, empyema of right side, paracentesis on three occasions with relief after each operation. In some concluding remarks (l. c., ii, 35) the writers state that in nearly all the cases the puncture was entirely healed in two or three days, and that the use of the aspirator shortens very much the duration of cases of pleuritic effusion or empyema.

The cases published in the French and Italian periodicals are mainly of a very simple nature. R. Tripier gives one ('Lyon Méd.,' xiv, 433)

which he followed up at a later period, finding the patient (ib., xv, 172) going on well after repeated small tappings some months before. This case gave rise to a discussion in the Society of Medical Sciences at Lyons (ib., 173).

Bowditch ('Practitioner,' 1873, April) has performed in 24 years 270 operations of thoracentesis without a single injurious result. He insists on the absolute harmlessness of the operation, neither disease, age, sex, nor pregnancy, contra-indicating it.

F. Busch ('Arch. f. Klin. Chir.,' xvi, 68) gives the following somewhat unusual case:—A man, æt. 35, swallowed on Nov. 30, 1872, a sharp piece of bone, which could not be found on repeated employment of the sound. But at any rate there must have been rapid perforation of the œsophagus and of the parietal portion of the right pleura, as on December 2nd there was pneumothorax on that side, followed by effusion reaching as high as the angle of the scapula. On the 7th paracentesis was performed, and the cavity washed out daily till Feb. 8, 1872, when the patient was considered convalescent. The piece of bone was not found. Adelmann has collected three cases of an analogous kind, all fatal, and Busch, in recording a fourth, also fatal, insists on the necessity of early tapping. The right pleura was pierced by the foreign body more frequently than the left, and emphysema, one of the chief symptoms of rupture of the œsophagus from severe vomiting, was exceptional.

Sargenti gives ('Gaz. Med. Lombard.,' 1873, 177) a case of empyema in a man, æt. 25, with what he conceives to be abscess of the lung (!). The patient had had pleurisy of the left side, followed by empyema, for which he was tapped and two quarts of good pus removed. The same quantity was taken away two days later, a drainage tube left in subsequently, and the cavity washed out daily with solutions of permanganate of potash, carbolic acid, or nitrate of silver, the general condition of the patient being improved under tonics and good fare. Two months after the operation there were signs of pneumonia in the left lung; ten days afterwards the patient spat up a quantity of fetid pus, which came also, on coughing, through the tube. There was some slight tympanitic sound where there had been dulness anteriorly, coarse rhonchi, a blowing sound at the external opening, and the patient complained of tasting the carbolic acid injection. Five months after the fetid expectoration (opening of a bronchus into the pleura?—*Rep.*) the man was convalescent.

Eisenlohr ('Berl. Klin. Woch.,' 1873, 473) gives the following case:—A man, æt. 30, suffering from phthisis, became the subject of pleuritic effusion on the right side. This was tapped, with the result later of a pneumothorax with purulent effusion and a fistula in the chest-wall. Seven weeks after the operation he was attacked with pleurisy in the left side. The heart's dulness was replaced by tympanites, metallic tinkling, and a murmur of fluctuation synchronous with respiration. The heart's impulse and dulness could be recognised only when the patient sat up. The dypsnœa increased, with symptoms of compression of the œsophagus, and the patient died in collapse and delirium. Pyo-pneumo-pericarditis had been diagnosed, and was found at the autopsy. An opening existed between the right pleura and the cavity of the

pericardium. The right lung was completely carnified and pushed up against the vertebral column. Nothing is said about any opening between the lung and the pleura.

R. Nelson records ('Lancet,' 1873, i, 767) an interesting case of rupture of the lung with hæmothorax. A gunner, æt. 40, was engaged in digging a trench when he was suddenly buried by a mass of loose gravel. The most marked symptoms during life were intensely loud bronchial râles, great dyspnœa, and after a few days complete dulness, with absence of respiratory murmur, over the whole right side. The patient died on the tenth day. There was no external wound or ecchymosis of the chest-walls; the right pleural cavity contained twenty-five ounces of dark fluid blood; the right lung was one fourth its normal size, firm in consistence, and contained only a small quantity of air. A transverse rent about 1½ inch long, extended through the pleura pulmonalis and for a short distance into the substance of the lung on the external surface of the middle lobe. The costal pleura was uninjured, and there was no fracture of the ribs. The left lung was emphysematous in a most marked degree, the air-vesicles in its upper third being ruptured and formed into cavities as large as a hazel-nut. The bronchial tubes showed signs of subacute inflammation, and were choked with frothy mucus. The surface of the heart was coated with a recent deposit of lymph. The other organs were healthy.

Under the heading of "albuminous expectoration" ('De l'Expectoration albumineuse après la Thoracentèse,' Paris, 1873, pp. 85), Térillon has collected 21 cases in which, as is not uncommon, paracentesis of the chest wall and the sudden removal of the effusion was followed by acute serous effusion into the alveoli of the lung. Two of his cases died from œdema of the lung. He found this "albuminous expectoration" to occur from ten minutes to half an hour after the operation. A discussion as to the cause of the phenomenon is continued by writers, references to whose papers are to be found in the bibliography below. Numerous papers in addition on the same subject may be found in the 'Union Médicale' (vols. xv, xvi, &c. See also review of the subject, 'Gaz. des Hôp.,' 1873, 377).

Béhier, "Pleurésies à épanchements modérés, Thoracentèse avec trocarts capillaires et aspiration: Appareils divers" (cont. from 1872), 'Gaz. des Hôp.,' 1873, 11. Bouchut, "Nouvelles observations de Pleurésie purulente guérie sans fistule par le ponction avec l'aspirateur Dieulafoy" (girl, æt. 3, one puncture; girl, æt. 10, eleven punctures), ib., 178. Meynet, "Rhumatisme articulaire aigu survenu dans le cours d'une Blennorrhagie, endopéricardite consécutive, épanchement pleurétique, thoracentèse, guérison" (boy, æt. 17), 'Lyon Méd.,' xii, 91 (and see discussion, ib., 107). Lasègue, "Pleurésie droite, developpée sous l'influence d'un Lympho-sarcôme en voie de généralisation, autopsie" (man, æt. 49, paracentesis), 'Arch. Gén.,' xxiii, 486. Toulmouche, "Des difficultés qu'apportent au diagnostic des Épanchements pleurétiques les complications d'états morbides des poumons, du cœur et de son enveloppe ou des organes renformés dans la cavité de l'abdomen et dans celle du crâne," ib. xxii, 129. Laboulbène, "Nouvelles observations pour établir la cause de l'Élévation de la Température centrale chez les malades atteints de Pleurésie aigue et auxquels on vient de pratiquer la Thoracentèse," 'Compt. Rend.,' lxxvi, 446. Rochs, 'Ein mehrfach complicirter Fall von Pleuritis,' Berlin, 1873. Lebert, "Ueber die operative Behandlung der Brustfellentzündung," 'Berl. Klin. Woch.,'1873, 245. v. Heuss "Ein Troicart zur Thoracocentese," ib., 389. Rupprecht, "Beitrag zur Anwendung der Thoracentese mit Rück-

sicht auf die Tutschek'sche Methode," 'Wien. Med. Woch.,' 1873, No. 41. Abay, 'Zur Casuistik der operativen Behandlung der Pleuritis,' ib., No. 22. Moxon, "Glandular Obstruction and Pleuritis," 'Path. Soc. Trans.,' xxiv, 28. Foster, "Long-standing Pleuritic Effusion relieved by the Aspirator, gangrene of both lower extremities from embolism of the common iliac arteries, acute tuberculosis, death" (man, æt. 26, right-side effusion), 'Med. Times and Gaz.,' 1874, i, 525. Philipson, "Report of a Case of Paracentesis Thoracis" (man, æt. 22, left-side effusion, recovery), 'Brit. Med. Journ.,' 1874, i, 832. Russell, "A Case of Chronic Pleurisy in which Aspiration was performed four times, with comment" (man, æt. 28, effusion into right side, chronic Bright's disease, improvement), ib., ii, 173 (and for post-mortem examination see ib., 404). Wardell, "Remarks on Pleuritic Effusion," ib. ib., 577. Goodridge, "On the employment of Thoracentesis in Acute Pleuritic Effusion" (girl, æt. 13, left side, recovery), ib. ib., 738. Date, "Case of Empyema treated by Thoracentesis" (man, æt. 29, right side, recovery), ib. ib., 740. Williams, "Case of Paracentesis Thoracis, with remarks" (man, æt. 38, left side, recovery), ib. ib., 741. Harris "Empyema of the right side, Paracentesis Thoracis, relief" (man, æt. 40, discharge of pus for nearly 7 months), 'Lancet,' 1873, i, 10. Id., "Acute Pleurisy with Effusion, Paracentesis Thoracis, recovery" (man, æt. 20), ib. ib., 166. Peacock, "Case of Empyema opening through the Lungs" (woman, æt. 33, signs of effusion on left side, recovery), ib. ib., 269. Russell, "Case of Empyema limited by adhesion, imperfect relief by natural Opening, Persistent Temperature, free Counter-opening, relief" (man, æt. 35, left side, highest temperature 100°—102·5°), ib. ib., 627. Ewart, "A case of Empyema treated Antiseptically" (man, æt. 20, left side, recovery), ib., ii, 809. Sansom, "Cases illustrating the use of the Pneumatic Aspirator in the Treatment of Effusions," ib. ib., 811. Dunlop, "An unusual case of Latent Disease" (pleuritic effusion, old endocarditis, in girl, æt. 18, sudden death, autopsy), ib., 1874, i, 797. Southey and Smith, "Perinephritic Abscess, opened, perforation into pleural cavity, pericarditis, death" (for early history, see ib., 1873, ii, 772), ib., 1874, i, 53. "Extra-thoracic Suppuration, with discharge into the Lungs" (woman, æt. 37), ib., 1873, i, 273.

Moutard-Martin, "Discussion sur les Perforations pleuro-bronchiques sans pneumothorax dans l'expectoration albumineuse après la Thoracentèse," 'Union Méd.,' xv, 962. Béhier, "Cas de Mort très rapide après la Thoracentèse, recherches de la cause, enseignments scientifiques et pratiques qui en découlent," ib., No. 74. Dujardin-Beaumetz, "Note sur un cas d'Hydro-pneumothorax avec expectoration albumineuse à propos des perforations pleuro-bronchiques sans pneumothorax," ib., No. 73. Hérard, "Sur l'Expectoration albumineuse," 'Gaz. Hebd.,' 1873, 530. Duffin, "A Contribution to the Pathology of Albuminous Expectoration after Thoracentesis," 'Brit. Med. Journ.,' 1874, i, 372. Legrand, 'De la Thoracentèse en Angleterre,' Paris (Thesis), 1873, pp. 64. Bartels, 'Ueber peripleuritische Abcesse,' 'Deut. Arch.,' xiii, 21. Perroud, "Sur la Guérison des Granulations tuberculeuses des plèvres," 'Lyon Méd.,' xv, 97. Bärensprung, "Zur operativen Behandlung des Pneumothorax," Berlin, 1873. Noble, "Some particulars of a Case of Pneumothorax," 'Brit. Med. Journ.,' 1873, ii, 425. Wilks, "Simple Pneumothorax, with complete recovery" (female, æt. 30, left side), ib., 1874, ii, 770. Renault, "Pneumothorax determiné par une cause peu connue," 'Union Méd.,' xv, 905. Cole, "Case of Fistulous Pneumothorax" (girl, æt. 18), 'Lancet,' 1874, ii, 340. Sturges, "Air entering the Pleura, not from the Lung, hydro-pneumothorax, partial recovery" (man, æt. 28, ulcer of stomach, with perforation through diaphragm), ib., i, 196. M'C. Anderson, "Case of Hydrothorax" (man, æt. 28, paracentesis of right side, recovery), 'Glasg. Journ.,' n. s. vi, 331.

## *Bronchitis and Emphysema.*

F. Kretschy ("Zur Bronchitis crouposa acuta," 'Wien. Med. Woch.,' 1873, No. 14) gives the following:—A man, æt. 23, was suddenly seized with severe rigor, followed by great dyspnœa and bronchial expectoration; next day he had seven attacks of the same nature; the lower part of the left side became dull on percussion, and he died in a state

of coma on the tenth day from the commencement of his illness. At the autopsy a thick fibrinous plug occluded the right bronchus and its branches; there was soft infiltration of the lower part of the left lung; the third and fourth right ribs were carious. The plugs which he had expectorated during life and that found post mortem agreed completely, being 11 cm. long and 1½ to 2 cm. in diameter, coming, therefore, from the same place in the right lung. The epithelium of the bronchus was in parts gone; microscopically the plug was made up of four layers. This structure and the rapid reproduction point, according to the writer, to their origin in croupous exudation.

C. Gerhardt thinks ('Berl. Klin. Woch.,' 1873, 25) that the expiratory act in emphysema may be aided and strengthened by pressure with the hands. He used this means on two patients suffering from this affection two or three times daily for a period of twenty to thirty respirations, and watched the increase of vital lung-capacity of both. Other consequences of this mode of treatment were slight hæmorrhages from the bronchi in both the patients, and twitchings of the facial muscles in one of them.

Lagrange, 'Étude clinique sur diverses formes de Bronchitis,' Paris, 1873. Ringer and Murrell, "On Ipecacuanha Spray in Winter Cough and Bronchitic Asthma," 'Lancet,' 1874, ii, 338. E. Payne, "Inhalation in a case of Casts of the Bronchial Tubes," ib. ib., 656. Rohden, "Lungenemphysem und der Hauke'sche Apparat," 'Wien. Med. Woch.,' 1873, No. 17. Fischer, "Ueber das traumatische Emphysem," 'Volkmann's Vortrage,' ser. iii, No. 65. Burmann, "General Idiopathic Emphysema, with fatal issue" (woman, æt. 40, autopsy), 'Brit. Med. Journ.,' 1874, ii, 588.

*Bronchial Asthma.*

F. Haring ('Ueber Bronchialasthma,' Halle, 1873) thinks that the symptoms of asthma are not sufficiently accounted for by the reasons upon which other writers lay weight, especially spasm of the bronchi or diaphragm; he would rather look for their origin in an acute catarrh of the smaller bronchi, caused, probably, by vaso-motor paralysis of the small vessels of the respiratory passages, and gives six cases in support of his theory.

Hänisch, "Zur Aetiologie und Therapie des Asthma bronchiale," 'Berl. Klin. Woch.,' 1874, 503. Gigot-Suard, 'De l'Asthme,' Paris, 1873. C. T. Williams, "Spasmodic Asthma treated by Chloral" (three cases), 'Lancet,' 1873, ii, 596. Id., "Clinical Lectures on Spasmodic Asthma," ib. ib., 325. Berkhart, "The Pathology of Asthma," ib. ib., 703. Gaskoin, "On the Relations of Asthma to Skin Disease," ib., 1874, i, 443. C. T. Williams, "The Pathology and Treatment of Spasmodic Asthma," 'Brit. Med. Journ.,' 1874, i, 769. Thorowgood, "Nature and Treatment of Asthma," 'Med. Times and Gaz.,' 1874, i, 63.

*Whooping-cough.*

L. Letzerich ("Ueber die Lungenmycose beim Keuchhusten nebst Angabe einer Methode zur Heilung des letzteren," 'Virch. Arch.,' lvii, 518) finds a fungus in the air-passages, to which he thinks whooping-cough is due. This fungus, he believes, in the more serious cases penetrates into the air-vesicles, but does not, like his diphtheria-fungus (see last 'Report,' p. 102), work its way into the circulation. He recom-

mends insufflation of powders containing equal parts of chloride of quinia and bicarbonate of soda (1½—2 grs.) and double the quantity of gum arabic. These powders are to be used night and morning, to be blown into the trachea while the child takes a deep inspiration in the act of crying, the tongue being pulled forward and fixed by the little finger of the left hand. This treatment leads to rapid disappearance of the peculiar spores from the sputa. He gives three drawings showing the presence of the spores within and on the epithelium of the alveoli.

Weiss, "Petroleum ein Mittel gegen Keuchhusten?" 'Berl. Klin. Woch.,' 1873, 232. Wilde, "Zur Therapie des Keuchhustens" (by inhalations of chloroform mixed with æther and oil of turpentine), 'Deut. Arch.,' xiv, 261. Wockenstein, "Zur Kenntniss der Rational-therapie des Stickhustens [Tussis convulsiva]" (experiments on rabbits, cats, and dogs), 'Centralbl.,' 1874, 868. Letzerich, "Neue Untersuchungen uber den Keuchhusten, Tussis convulsiva, Pertussis und über die Entwickelung des Keuchhustenpilzes," 'Virch. Arch.,' lx, 409 (with plate). Porter, "Chloral in Pertussis" (12 cases), 'New York Med. Journ.,' xviii, 179.

## *Pneumonia.*

T. Jürgensen discusses ('Volkm. Vorträge,' No. 45) the treatment of croupous pneumonia, death during which occurs, he thinks, from failing power of heart. The treatment ought, therefore, to be directed on the principle of guarding against it, or combating it when it does occur. For the first he orders baths and quinine during the febrile stage; for the latter, repeated counter-irritants, strong wine, and in the cases of collapse musk and champagne. Under these means he has lost latterly 24 out of 200 cases.

Fismer compares ('Deut. Arch.,' xi, 391) the results of the cold-water treatment of 230 cases of pneumonia, in the hospital at Bâle, from the middle of 1867 to that of 1871, with a like number of cases treated in earlier years without baths. He finds the mortality very much lessened, though the fatal character of pneumonia has increased in the town. He gives tables of temperature-curves and comparisons between the two sides of the lungs, the two sexes, and the seasons of the year most characterised by the affection.

A. Hermann ('Allg. Wien. Med. Zeitg.,' 1873, No. 46) opposes Jürgensen's views, basing his own arguments on 163 cases of simple pneumonia, of which he gives comparative tables.

H. Schlesinger ('Zur Statiskik der genuinen fibrösen Pneumonie,' Berlin, 1873) found the right lung the seat of pneumonia in 51 cases, the left in 21, and both in 7. In 32 cases the lower lobes only were affected, the right in 23, the left in 9; in 14 the upper lobes only, the right in 13, the left in 1. The mortality was 18 per cent., partly from complications. It rose in proportion to age, the patients being between the ages of 16 and 68.

F. E. Anstie publishes ('Lancet,' 1874, i, 395) a case of double pneumonia following pericarditis in a man, æt. 31, who eventually recovered. A chart is given showing side by side the fluctuations of urea, urinary water, temperature, pulse, respiration, amount of absolute alcohol administered in the shape of brandy, and the amount of ingoing nitrogen in food.

Cornil writes ('Gaz. Méd.,' 1873, 185) on changes in the elastic fibres of the lung. The patient was a youth, æt. 18, who died with symptoms of gummata of the skull and dura mater, and had gummata of the sternum and broncho-pneumonia. A large portion of the upper and some part of the lower lobe of the left lung were indurated, without being completely hepatized. There were nowhere any tubercles or cheesy deposits. On section these portions of lung had the character of advanced lobar catarrhal pneumonia. Microscopic examination in the fresh state showed that most of the alveoli were filled with an exudation composed of pus-corpuscles and more or less granular epithelial cells. The bundles of elastic fibres were thick, rigid, and easily broken. Sections of the hardened lung-tissue only served to prove that the lesion of the fibres, characterised by their swollen appearance, their altered refraction, their hardness and friability, coincided in this case with a retrogressive period of the catarrhal pneumonia and a partial atrophy of the capillary vessels.

Friedländer, 'Untersuchungen über Lungen-entzündung,' Berlin, 1873, pp. 30 (with a plate). Sturges, "The Pathology of the Pneumonic Lung," 'Med.-Chir. Rev.,' 1873, April. Moxon, "Acute Interstitial Pneumonia or Purulent Inflammation of the Lymphatics of the Lung," 'Path. Soc. Trans.,' xxiv, 20. Goodhart, "Acute Interstitial Pneumonia," ib., xxv, 33. Cersoy, "Pneumonie chez une buveuse d'Eau-de-vie, traitement par l'alcool et l'extrait de quinquina, guérison," 'Bull. Gén. de Thérap.," t. 85, p 84. Skoda, "Ueber Stuhlverstopfung bei Pneumonie," 'Allg. Wien. Med. Ztng.,' 1873, 516. Beddoe, "Incipient Pneumonia resolving into a copious Eruption of Herpetic Vesicles," 'Lancet,' 1873, i, 910. Thompson, "Case of Pneumonia, Delirium Tremens, Rupture of the Recti Muscles, Atrophy of one Kidney and Hypertrophy of the other" (man, æt. 40), 'Med. Times and Gaz.,' 1874, i, 476. Crocq, "Autopsie d' un Homme de 58 ans, décédé à la suite de Pneumonie," 'Presse Méd. Belge,' 1874, 239. Id., "Du traitement de la Pneumonie, et de la méthode expectante, ses consequences" (two cases), ib., 175. Sée, "Des differentes modes de traitement de la Pneumonie," 'Union Méd.,' xv, 478, &c. Lavit, "Deux Observations de Fièvres catarrhales et malignes, l'une à forme cérébrale, l'autre à forme pneumonique," 'Gaz. des Hôp.,' 1873, 338.

*Brown Induration and Hypertrophy.*

J. Orth ("Zur Kenntniss der braunen Induration der Lunge," 'Virch. Arch.,' lviii, 126) found in a case which presented the so-called brown induration of the lungs after mitral insufficiency, that the capillaries, and even vessels of a larger calibre, were filled with the same more or less brown pigment. It occurred in the interstitial tissue and in the cavities of several alveoli, within large nucleated cells (lung-epithelium). Injection of a pulmonary artery did not pass into several of these pigment-containing vessels, whether in the lung-tissue or in the capillary loops of the alveoli. The pigment itself existed partly as amorphous granules and flakes, partly as roundish bodies, which on the addition of potash swelled up, took on a yellowish colour, and looked like altered blood-cells. As in some sort compensating for the hindrance to the circulation caused by this plugging, were found long unbranching vessels, which seemed to occupy by preference spots in which a large number of capillaries had been rendered impervious, partly in the larger septa, partly in the walls of the alveoli. The condition described supports the older view, according to which, besides

the pigment formation described by Langhans within cells containing blood-corpuscles, a free formation of pigment is also caused by indirect change in red blood-corpuscles.

*Gangrene and Abscess.*

E. Lancereaux gives the particulars ('Arch. Gén.,' xxi, 276) of a case of gangrene of the right lung in a gardener, æt. 21. Three years before, he had had an attack of intermittent fever, but had been apparently well up to about a fortnight before his admission into hospital, at which time, after a drinking bout, he was seized with pain in the right side and cough. He complained of general malaise and night sweats; his sputa were yellowish, and once tinged with blood and, like his breath, fetid. The lower third of his right lung was dull on percussion. Three weeks later these symptoms had become worse; he lost flesh rapidly; there was trembling of his lips and hands, vomit mingled with greyish, extremely fetid sputa, a pulse of 104, and a temperature of 38·7 C. The dulness on percussion was more extensive, the cavernous breathing was accompanied by large crackles; there was diarrhœa, and latterly hæmoptysis. The patient died in about two months from the time of admission. The autopsy showed general adhesion of the whole right lung; the upper lobes were œdematous, the lower riddled with cavities containing fluid of darkish grey colour and most horribly fetid stench. The left lung showed the existence of lobular pneumonia at the base. The bronchial glands were swollen and injected. The heart contained clots prolonged into the vessels, but was otherwise normal; the liver was congested, and the spleen increased in size. The fluid removed from the right lung gave under the microscope "granular leucocytes," red blood-cells, and bacteria. The writer remarks on the symptoms of death from septicæmia present in this case; he made experiments with the blood removed from the heart of the patient on several rabbits, and thinks that the results found in these animals after their death were due to a special modification of the blood during life, and due to the presence of vibriones.

A. W. Foot ('Dublin Journ.,' lv, 28) publishes two cases of "circumscribed pulmonary gangrene from hæmorrhagic infarction, the result of submersion; frequent hæmoptyses; recovery." Both patients were men, aged 35 and 37; both had rigors in shorter or longer periods after the immersion, followed by pain in the left side and fetid expectoration. The physical signs were, in both, mainly those of bronchitis. Both had the same profuse sweatings in the early, hæmoptysis in the middle, and diarrhœa in the later, stages; the same prostration of strength out of all proportion to the physical signs; the same variability of symptoms—one day better, another day worse; both were singularly free from high fever, one had hardly any pyrexia. The writer enters into full particulars of the sputa and the different drugs used to combat the fœtor.

N. Alcock records ('Med. Times and Gaz.,' 1873, i, 271) a case to show the interrupted correlation of respiration, pulse, and temperature, in gangrenous abscess of the lung. The patient was a soldier, æt. 33, who had been nine years in India. Moist crepitant râles were heard

in the apex of the left lung; there was no prominent symptom of constitutional disturbance; the hæmoptysis was never considerable. The post-mortem showed in the apex of the left lung three gangrenous abscesses filled with intolerably fetid pus. The rest of the lung was lividly congested, and studded closely throughout "with white specks of tubercles, which resembled the miliary variety in manner of deposition, but which possessed neither the glistening whiteness nor characteristic hardness of that class. The right lung was healthy, with the exception of a few scattered grains of tubercle in the upper lobe. This form of tubercle bears to the constitutional state developed by prolonged residence in India the same relation that the cheesy deposit of scrofulous pneumonia bears to that particular diathesis."

Hayes, "Gangrene of the Lung in Children," 'Med. Times and Gaz.,' 1874, i, 177.

### *Growths, Foreign Bodies, &c.*

G. F. Elliott records ('Brit. Med. Journ.,' 1874, i, 541) a case of primary cancer of the lung in a female, æt. 28. She presented the following symptoms:—Congestion of the face, and enlargement of the neck from fulness of the thyroid body; complete dulness, absence of respiratory murmurs and marked vocal fremitus over the right lung anteriorly; dyspnœa, greatly increased on exertion; violent paroxysms of cough, with slightly frothy sputum. The patient died about seven months after her first mention of intrathoracic pains. The autopsy showed a considerable amount of fluid and numerous adhesions in the right pleural cavity. Almost the whole of the upper part of the lung was puckered up, nodulated, and converted into a hardish white substance, on microscopic examination encephaloid. There was a small quantity of serum in the pericardium, and the same growth made its appearance at the root of the heart in the form of a round nodule projecting between the right auricle and the aorta. The other organs were healthy.

R. D. Powell gives ('Path. Soc. Trans.,' xxiv, 28) a description with drawings of osteo-sarcoma occurring in the lung of a woman, æt. 20, secondary to a growth in the right knee-joint. About two years after amputation of the latter she was attacked with hæmoptysis and died in the course of four months.

W. Hamburger records ('Berl. Klin. Woch.,' 1873, 328) an interesting case of a foreign body impacted in a bronchus. A strong man, æt. 70, after a sudden fainting-fit presented symptoms of cerebral disturbance and great dyspnœa. The right half of the thorax was perfectly free from movement, no respiratory murmur was audible over it, and it measured an inch and a half less than the left side; the latter was emphysematous. As the symptoms were considered to be due to plugging of the right bronchus, a strong emetic was given, and the man expectorated a green pea, which had swollen to the size of a bean. This pea he had swallowed eight days before, and the length of time which had elapsed before it gave rise to any symptoms was probably due to the slow manner in which it had gradually swollen, after becoming fixed in one position.

Troisier, 'Recherches sur Lymphangites pulmonaires,' Paris, 1874, pp. 50 (with plate), and see 'Arch. de Phys.,' 1874, 355. Raynaud, "Mémoire sur l'Angioleucite généralisée des Poumons," 'Union Méd.,' 1874, xvii, 460. Hillairet, "Observations d'Angioleucite pulmonaire dans le cancer de l'estomac," ib., 722, &c. Cornil, "Note sur les Lymphangites pulmonaires à propos d'une lymphangite du poumon observée dans la Syphilis viscérale," ib., xviii, 25. (The foregoing papers have reference to secondary carcinoma of the lung.) Symes Thompson, "Dust-inhalation as a Cause of Disease," 'Med. Times and Gaz.,' 1873, ii, 429. Hime, "On Anthracosis," 'Med. Press and Circ.,' 1783, i, 129. Kuntzen, 'Ueber Staubinhalationen,' Berlin, 1873. Parrot, "Cas de Mort par l'introduction de chyme dans les voies aeriennes" (child, æt. 11 months, death from dyspnœa three hours after vomiting coagulated milk; bronchi, &c., filled with sour milk), 'Gaz. Méd.,' 1873, 184. Day, "Passage of a Foreign Body through the Right Lung, pneumonia, abscess, recovery" (girl, æt. 1), 'Clin. Soc. Trans.,' vi, 126. Barwell, "Case of Foreign Body impacted in Right Bronchus" (shoeblack, æt. 17, tracheotomy), ib., 120. Id., "Two cases of Fractured Ribs, with wound of lung, emphysema, pneumothorax, hydrothorax, recovery," 'Lancet,' 1874, i, 91. De Morgan, "Penetrating Wound of Chest with an Iron Rail, laceration of lung, death" (man, æt. 33, four inches of iron spike buried in chest), ib. ib., 90. Beck, "A Plum-stone lodged in the Left Bronchus, tracheotomy, expulsion, recovery" (girl, æt. 9), ib., ii, 798.

### *Phthisis.*

E. Aufrecht ('Die chronische Broncho-pneumonie (Lungenschwindsucht) und die Granulie, (Tuberculose),' Magdeburg, 1873, pp. 56) bases his conclusions on 100 autopsies of patients dying of phthisis. In 92 of the chronic cases the lungs were free from tubercles and showed only broncho-pneumonic deposits in the apices. In four cases miliary tubercles were present without any remains of any antecedent local inflammation. In a small number of cases the two forms occurred together. The broncho-pneumonic form consists in a deposition of white blood-corpuscles in the small bronchi and alveoli, frequently with consequent destruction of the exudation and the infiltrated part. The disease commences very often without any symptoms except those of anæmia. Aufrecht does not hold Niemeyer's views on the subject of hæmoptysis, though it may be attended with the results described by the latter in a very few cases; he has observed only two cases of the kind, and looks upon it only as a consequence of an existing broncho-pneumonia; but he allows that hæmoptysis, by the presence of blood in the lower lobes especially, may set up fresh points of broncho-pneumonia, particularly when the free movement of the lung is prevented by thickened pleura. Of catarrh at the apices he does not make much account, thinking it also a consequence of chronic deposits. On the other hand, a lobar pneumonia of the apex or an attack of catarrhal pneumonia in childhood may be the starting-point of the affection, and in these cases there are certain predisposing causes, hereditary and other. Broncho-pneumonia may end, only in a very few cases, in recovery; generally its course is bad—(1) through the eruption of a miliary tuberculosis, to which, following Empis, he gives the name "granulia;" or (2) in the shape of a galloping phthisis, &c., the production of rapidly dying deposits, in a course of one to three months; or (3) most frequently, by the chronic extension of the process, which may drag on through a period of forty or fifty years. As to the histological elements found in the tubercle granulation, he agrees to some extent with Klebs

in its development from the lymph-vessels, but not directly from their endothelium. As to treatment, in addition to all means of prophylaxis he advises iron in combination with quinine.

Buhl ("Lungenentzündung, Tuberculose, und Schwindsucht: Zwölf Briefe an einen Freund,' München, 1872, pp. 164) divides all inflammatory processes occurring in the lungs into "superficial" and "parenchymatous," the former including those in which the internal surface (epithelial in the sense of endothelial) is attacked, the products being contained in the bronchi and alveoli, the latter term embracing those in which the walls of the bronchi and alveoli and the interstitial tissue are engaged. He discusses at length the course and pathology of the first class of cases, including (1) catarrhal and (2) croupous; and of the second, comprising (3) desquamative pneumonia. Of the latter he distinguishes two special modifications:—(*a*) consecutive desquamative pneumonia, following acute infectious diseases, &c.; (*b*) true desquamative pneumonia, a primary affection, commencing by preference in the upper portions of the lungs and extending downwards, generally proving fatal after six or eight weeks' course, but in some cases becoming chronic and ending in (1) chronic fatty degeneration, fatal in a year, with symptoms of phthisis; or (2) cirrhosis (chronic interstitial pneumonia); or again, and most frequently, in (3) cheesy pneumonia. After entering into minute details, which it is impossible to follow in this abstract, the writer proceeds to speak of a condition not necessarily part of, though very generally combined with, inflammations of the lung, and affecting the deeper layers of the bronchial wall and adventitia, more especially in the finer bronchi—Peri-bronchitis. In this condition, again, he distinguishes three forms—(*a*) *P. fibrosa*, mostly associated with cirrhosis of the lung; (*b*) *P. nodosa*, formerly described as chronic discrete miliary tuberculosis, a perfectly distinct affection; (*c*) a far more fatal form than these two, the tendency of which is to cicatrization, is *P. purulenta* or *exulcerativa*, consisting in prurulent infiltration and destruction of the bronchial walls and lung tissue, leading to the existence of cavities. Buhl's views as to the nature and minute structure of tubercle agree in the main, though with certain exceptions, with those of recent observers. In the lungs it occurs in the internal fibrous layers of the mucous membrane of the larger bronchi, in the walls of the bronchioles and vessels, in the inter-alveolar connective tissues, and in the alveoli themselves. Acute miliary tuberculosis is a specific disease, due to absorption and infection. In 300 cases cheesy deposit was wanting in only 10 per cent., and Buhl would find something specific in the infectious material of these cheesy centres. In his concluding chapter he treats of pulmonary phthisis, which he defines to be gradual destruction of the respiratory organs, either by itself or combined, in most cases, with wasting of the whole body. He holds that two forms must be distinguished—(1) infectious phthisis, acute miliary tuberculosis, which never causes independently any peculiar destruction; and (2) inflammatory phthisis, which seldom runs its course without ulceration. Finally follow remarks on treatment, and strong advice to examine the sputa, for which, as for much else passed over here, reference must be made to this most important work.

Rindfleisch also contributes ('Deut. Arch.,' xiii, 43) a very important paper on "Chronic Tuberculosis of the Lung." After discussing the histological characters of "tubercle," he proceeds to show that its original seat is to be found at the passage of the finest bronchi into the vesicles of the lung, and that its infiltration thence leads to the formation of a circumscribed white nodule—Laennec's tubercle-granule. He further discusses the share of hæmoptysis and pleurisy in the course of the affection, and the further advance of the original disease to peribronchitis tuberculosa and desquamative pneumonia, together with the modifications caused by the diverse mode of onset of the latter complication, the formation of cavities, the chance of any process of recovery, and, in conclusion, the different varieties of phthisis.

R. Massini ("Ueber die Heilbarkeit der Lungenschwindsucht," ib., xi, 446) asserts, from his own observations, that two thirds of the fatal cases of phthisis belong to cheesy pneumonia, and that tubercle is found in only one third. In our present state of knowledge it is impossible to say that we can cure cases in which miliary tubercle occurs. But the presence of cicatrices found post mortem in the apices of the lungs shows that cheesy pneumonia, when uncomplicated by tubercle, can recover itself. Pulmonary phthisis frequently follows enteric fever, and since the decrease in cases of typhoid at Basle mortality from phthisis has also decreased.

F. Mosler ('Berl. Klin. Woch.,' 1873, 509) had already in two hopeless cases of phthisis punctured cavities in the lungs lying superficially, and washed them out with a weak solution of permanganate of potash, with an apparent improvement in the general condition. The case he now gives at length was that of a man, æt 49, who had been under treatment for five years with a cavity due to a dilated bronchus in the right upper lobe, and at last affected with amyloid degeneration of the kidneys and intestine. In this case he attempted to set up a direct lung-fistula, and, after making an opening in the second intercostal space about 2½ cm. from the right margin of the sternum, introduced a silver drainage tube. The operation was not followed by fever; there was an abundant flow of pus from the tube, especially on coughing, and the man's general condition became better. On the occurrence of hæmoptysis he was allowed to inhale through the canula a weak solution of Liq. Ferri Perchlor., which soon stopped it, and later on inhalations of carbolic acid and tincture of iodine were employed in the same way. The pus seemed to be secreted in less quantity, and the lung mischief did not apparently increase, but the patient died four months after the operation. Of the post-mortem appearances, which are given in full, the most noticeable is the fistula, which led into a cavity filled with a yellowish creamy fluid, occupying the greater part of the right upper lobe. The writer draws attention to the tolerance of the lung exhibited, the fact that the danger of such operations is less than might be expected, and the possible advantages gained by them.

Bearing somewhat on the above paper are the observations of Koch ('v. Langenbeck's Arch.,' xv, 689; 'Centralbl.,' 1873, 891), made on

the lungs of animals. He finds that repeated acupunctures of these organs with Carlsbad needles through the intercostal spaces have no further effect than an increased growth of connective tissue; that weak injections of iodine solution have the same result; and that stronger solutions of the latter set up a circumscribed inflammation in the neighbourhood of the puncture.

C. T. Williams writes ('Lancet,' 1873, i, 298) on "The various Modes of Contraction of Cavities in Phthisis Pulmonalis." He thinks contraction of a cavity is by no means a very common incident. He states it to have occurred in 20 out of a 1000 cases—*i. e.* 6 per cent. He holds that this contraction is accomplished by—(1) expansion of the lung tissue round the cicatrix; (2) expansion and drawing over to the affected side of the opposite lung; (3) displacement of the neighbouring organs (heart, liver, stomach, and spleen); (4) collapse of the chest-wall. He gives what he conceives to be the changes which the physical signs undergo during the process, and adds some cases in illustration of his views.

Wilson Fox gives ('Med.-Chir. Trans.,' lvi, 396) an analysis of the morning and evening temperatures, pulse and respiration, of eighty cases of phthisis. He divides them into five classes:—A. Fatal cases:—1, Acute tuberculosis; 2, acute tubercular phthisis; 3, chronic phthisis. B. Non-fatal cases:—4, With high temperatures; 5, with comparatively low temperatures. The highest temperatures were most frequently attained in acute tuberculosis, but temperatures exceeding 104° were found in all classes except the fifth. As a rule, the highest temperatures were met with in the fatal cases. In chronic phthisis the temperatures were lower than the other classes (except class 5), and any rise exceeding 102° is for the most part due to pneumonic complications. From an analysis of the remissions and exacerbations observed he thinks that Niemeyer's assertion that acute tuberculosis is distinguished by continued high temperature is disproved, for a greater proportion of large remissions and exacerbations is observed in this affection than in any other class, though the difference is not very considerable. The cause of the variations of temperature described at length in the paper is by no means distinct; the larger oscillations may be in part due to the peculiar type of the fever, which resembles suppurative fever. The analysis of the pulse leads to the conclusion that the circulation is accelerated, and usually in proportion to the intensity of the disease, and Dr. E. Smith's observation that the pulse falls in phthisis after 9 p.m. and rises in the morning is confirmed by the fact that of the quickest pulses observed the larger number occur in the morning. The absence of correspondence between the degree of pyrexia and the respiration is remarkable.

Bilhaut ('Étude sur la Température dans la Phthisie Pulmonaire,' Paris, 1874) concludes that the temperature is above the normal, and gradually ascends up to the death-agony; lowering of the temperature is seldom seen, and is always temporary. The conclusions, generally, of this treatise are not new.

C. T. Williams ('Clin. Soc. Trans.,' vi, 54) records three cases of pyrexia in phthisis treated by cool baths. He urges their use only in

cases where limited consolidations exist and the pyrexia cannot be reduced in other ways. Their employment does not seem to be attended with much risk, except, possibly, in "large cavity cases," where there is danger of death by collapse or hæmorrhage. The good results obtained are for the most part merely temporary.

Souplet ("De l'emploi des Bains tièdes dans les Maladies de Poitrine, et en particulier dans la Phthisie Pulmonaire," 'Arch. Gén.,' xxii, 549) finds that tepid baths in which the patient is allowed to stay from twenty to forty-five minutes lower the pulse and temperature, prevent night sweats, increase the appetite, and generally improve the condition. No inconvenience was attributed to them in nine cases of phthisis, two of pneumonia, and two of pleurisy.

Globig ('Ueber den Einfluss der Luftdichtigkeit auf Lungenschwindsucht,' Berlin, 1873) holds that the rarer atmosphere of elevated regions acts through the increased flow of blood to the vessels of the lungs, thus hindering the process of cooling (? *Rep.*); while compressed air, causing decreased flow of blood, causes also decrease of the catarrh.

After some very lengthy introductory remarks on the value of rest in the treatment of Consumption ('Lancet,' 1873, ii, 552) J. B. Berkart states that in cases of this affection he has bandaged the chest with strips of adhesive plaster, so as to produce immobility of the lungs. He has never seen any inconvenience arise from it; the patients seem to derive immediate relief; the cough, expectoration, and frequency of respiration, decrease.

The Pathological Society of London indulged in a long discussion on "The Anatomical Relations of Pulmonary Phthisis to Tubercle of the Lung," which is reported at length in its 'Transactions' (xxiv, 284), and, with various remarks, in the journals of the day (March, April, 1873[1]).

Heitzmann, "Ueber Tuberkelbildung," 'Wien. Med. Jahrb.,' 1874, 217. Bollinger, "Zur Kenntniss der desquamativen und käsigen Pneumonie," 'Arch. f. Exp. Path.,' i, 376. Sommerbrodt, "Ueber die Abhängigkeit phthisischer Lungenerkrankung von primären Kehlkopfaffectionen," ib., 264. Springmühl, 'Die Ursache der chronischen Lungenschwindsucht,' Bâle, 1873, pp. 43. Wucherer, "Ueber die zuhnehmende Häufigkeit der Phthisis in Brasilien, besonders in der Stadt Bahia," 'Deut. Arch.,' xi, 471. Nothnagel, "Ueber Diagnose und Aetiologie der Einseitigen Lungenschrumpfung," 'Volkmann's Vortr.,' ser. iii, No. 66. Grancher, 'De l'Unité de la Phthisie,' Paris, 1873, pp. 49. Pollock, "Lectures on certain Clinical Varieties of Consumption," 'Med. Times and Gaz.,' 1874, i, 609, &c. Green, "Notes on the Pathology of Pulmonary Phthisis," ib., ii, 600. Marcet, "On Consumption, a form of Septicæmia," 'Brit. Med. Journ.,' 1874, ii, 520. Jenner, "Acute Pulmonary Tuberculosis with almost complete absence of pyrexia," ib., 1873, i, 370. Ringer, 'On the Temperature of the Body as a means for the Diagnosis and Prognosis in Phthisis,' London, 1873, 2nd edit. Handfield Jones, "Clinical Lecture on two cases of Phthisis," 'Med. Times and Gaz.,' 1873, ii, 85. Dobell, "A Contribution to the Natural History of Pulmonary Consumption, consisting of an analysis of 100 male cases of Hæmoptysis," 'Med.-Chir. Trans.,' lvii, 261. Teissier, "Des Hémorrhagies bronchiques envisagées dans leur rapport avec la Phthisie pulmonaire: observation d'hémoptysie par cause traumatique ayant occasioné la phthisie," 'Lyon Méd.,' xii,

[1] It would be utterly useless to attempt to give any abstract of this discussion, which, in one form or another, will be continued *ad nauseam* till speakers and writers arrive at some common definition of "tubercle."—A. B. S.

10 (and discussion on this paper, ib., 36). Stiénon, "Pneumonie caséeuse, cirrhose du foie" (man, æt, 24, autopsy), 'Presse Méd. Belge,' 1874, 3. Caillet, "Phthisie, insuccès du traitement classique, amélioration rapide et considérable par le Chlorhydrophosphate de Chaux" (woman, æt. 25), 'Gaz. des Hôp.,' 1874, 28. Blanc, "On the treatment of Phthisis by the Phosphate of Lime and the Juice of Raw Meat," 'Lancet,' 1874, i, 831. Williamson, "Observations on the use of Atropia in Phthisical Sweating," ib., ii, 116. Fräntzel, "Ueber den inneren Gebrauch von Atropium Sulfuricum bei profusen Schweissen, namentlich bei Nacht schweissen der Phthisiker," 'Virch. Arch.,' lviii, 120. McCrea, "On Limiting the Motion of the Chest in certain Lung-affections," 'Dubl. Journ.,' lvi, 360. Id., "On Strapping the Chest in Phthisis," 'Lancet,' 1874, ii, 76. Dobell, "On the Importance and Dangers of Rest in Pulmonary Consumption," 'Brit. Med. Journ.,' 1873, ii, 599. Bowditch, "Analysis of a correspondence on some of the Causes or Antecedents of Consumption," 'Fourth Ann. Rep. Board of Health, Massachusetts (1873)', 307. Peacock, "Moulded Coagula after Hæmoptysis," 'Path. Soc. Trans.,' xxiv, 20. Green, "Phthisis in a Syphilitic Child" (boy, æt. 6), ib., 31. Powell, "Fatal Hæmoptysis in an Infant," ib., xxv, 39. (And see under "Tuberculosis" and "Climate.")

## D. Diseases of the Circulatory System.

### *Cardiac Action, &c.*

D. C. McVail writes ('Glasg. Med. Journ.,' N. S., vii, 1) on "Pulse Dicrotism," and puts forward as his own theory that "dicrotism occurring in any part or segment of an artery is produced *in that very segment itself*, or, indeed, in a sense *by* that very segment, as an after-effect of the passage through it of the primary pulse wave. It acts, not in the direction of the axis of the vessel, but transversely to that axis." He thinks that experiment has shown him that, *cæteris paribus*, the more *smartly*, as distinguished from *powerfully*, the heart-stroke is delivered at any segment of a vessel the greater is the tendency to dicrotism, and thus in febrile and analogous conditions this smartness of stroke goes hand in hand with lowness of tension in the arterial system, both of them conditions favourable to dicrotism. (See also 'Med. Times and Gaz.,' 1874, ii, 361.)

C. Bäumler, "Ueber inspiratorisches Aussetzen des Pulses und den Pulsus paradoxus," 'Deut. Arch.,' xiv, 455. Kolisko, "Ueber das Verhalten der Action des Herzventrikels zur Pulswellenbildung in der Arterie," 'Wien. Med. Jahrb.,' 1873, 95. Stimson, "Peristaltic Action of the Arteries," 'New York Med. Journ.,' xix, 382. Mason, "Peristaltic Arterial Action, Objections to this Theory," ib., xviii, 602. Lutze, 'Ein Beitrag zur Mechanik der Herzcontractionen,' Cöthen, 1874, pp. 8 (with three plates). Colin, and others, "Cœur, Mouvements rhythmiques des Veines caves et en particulier du sinus de la Veine supérieure," 'Arch. Gén.,' xxxiii, 751. Balfour, "Case of Systolic Murmur in the Pulmonary Artery," 'Med. Times and Gaz.,' 1874, ii, 655. Eichhorst and Jacobson, "Zur Analyse der Auscultations und Percussions-Erscheinungen," 'Centralb.,' 1873, 258. Zenker, "Auscultation der Herztöne am Kopfe," 'Deut. Arch.,' xi, 605. Poore, "A New Method of Intensifying Sounds produced within the Chest" (abstracted in last 'Report,' p. 130), 'Clin. Soc. Trans.,' vi, 66. Paton, 'Researches on the Action and Sounds of the Heart,' London, 1873, pp. 64. Handfield Jones, "Cases of Heart Disease affording evidence respecting the Action of Digitalis," 'Med Times and Gaz.,' 1873, ii, 430. Grimshaw, "On the Influence of Digitalis on the Weak Heart of Typhus Fever" (abstracted in this 'Report,' p. 79), 'Dubl. Journ.,' lv, 579. Fothergill, "The Depressants of the Circulation and their use," 'Brit. Med. Journ.,' 1874, i, 7. Id., "The Mutual Relations of Diseases of the Heart and Respiratory Organs," 'Med. Times and Gaz.,' 1874, ii, 682. Id., "The Progress of Heart Disease," 'Lancet,' 1874, i, 685. Larcher, "Mémoire pour servir à l'histoire des Affections de l'Appareil Circulatoire chez les Oiseaux," 'Journ. de l'Anat.,' 1874, 163.

*Embolism, Thrombosis, &c.*

F. Penzoldt ('Deut. Arch.,' xii, 13) writes on the hæmorrhagic infarcta found in the lungs in cases of heart disease. In the majority of cases they owe their origin to emboli in the pulmonary artery. They occur most frequently in the lower and middle lobes of the right lung; of twelve cases, these lobes were alone the seat of infarcta in six, and in five others mostly concerned; in one case only were they free. After commenting on the necessary fact that plugging of the right side is followed by emboli in the course of the blood-stream towards the left lung, the writer discusses the effect of pleuritic exudation, shrinking of the right lung, &c., in bringing about the same result. In discussing the differential diagnosis of these hæmorrhagic infarcta the author shows from his own observations that the general view as to the temperature remaining normal, or even falling below that point, is incorrect, and that there is, at any rate in some cases, elevation of temperature, with sometimes distinct pyrexia.

Ponfick ('Virch. Arch.,' lviii, 528) describes the occurrence of aneurisms in consequence of emboli. They are found chiefly in arteries which run through yielding tissues, especially when the embolus is unusually hard and sticks fast in one of the branches behind the division of an artery. He sketches the process of formation of these aneurisms. During the course of an endocardial affection, a cretified block is detached from one of the valves and washed away into the blood-stream, till it reaches a vessel of about its own calibre; the lumen of the vessel is not completely filled, and the whole force of the blood-stream, till allowed to pass, beats upon one portion of the wall, which gradually becomes thinned and pushed outwards. The blood-sac thus formed, and containing either at its entrance or in its cavity the original embolus, may at last burst. In the far smaller number of cases, in which the embolus is not calcified, but soft, the same changes occur without direct pushing out of the vessel-wall.

T. Browne publishes ('Lancet,' 1874, i, 901) the following case. A man, æt. 51, suffering from varicose veins, received a contusion on the lower third of the right leg. Some pain on the day of injury was followed by only slight discomfort subsequently. A fortnight later, after running, he was seized with a feeling of faintness, followed by dyspnœa, syncope, and death in three quarters of an hour. The autopsy showed the lungs and heart normal, the latter not containing any clots. The inferior vena cava contained a tough ante-mortem clot, greyish-yellow in some parts, beginning above within an inch of the right auricle, extending downwards its whole length and some distance into the common iliac vein. It was easily removed entire. From the common iliac downwards the veins were free from clot till the internal saphena in the neighbourhood of the varix was reached, when a firm clot was again encountered, and extended through all the varicose veins, being especially firm in the latter, and in many points closely adherent to the walls of the vessels. The veins throughout the entire varix were rough and reddened in their lining membrane, and there was considerable matting together of the cellular tissue in this por-

tion of the limb. In another case of death under similar circumstances the writer found the obstruction firmly attached to the tricuspid valve, and floating for some distance into the pulmonary artery.

G. G. Gascoyen gives (ib., ii, 189) a similar case of sudden death. A man, æt. 44, struck his left knee, causing some pain. In a few days the limb became more painful and swollen, not pitting on pressure, but the patient refused to give up his business, which was some distance from his home, took his food as usual, and made no complaint. On the twenty-sixth day after the accident, returning home as usual, he suddenly became faint while ascending the steps of the railway station and unable to proceed. He was placed upon a chair and was observed to gasp and struggle for breath, striking his chest frequently as if to remove some obstruction. Taken home in a cab, he walked into his house with assistance and upstairs into his bedroom, lay down upon the bed and almost immediately expired. He was perfectly conscious throughout and did not complain of pain; his face was very livid, and his dyspnœa extreme. At the autopsy decomposition had rapidly advanced: there was no bruising about the seat of injury. The blood was perfectly fluid, the heart containing no clot. Both the lungs were congested, though crepitant throughout; the trunk and main divisions of the pulmonary artery were empty, but their subdivisions, as far as they were traced, were completely plugged by black, dry, and friable clot. A firm dry clot was found in the left femoral vein from the profunda downwards, extending throughout the popliteal and tibial veins even into the small branches. The sheath of the femoral vessels was thickened and adherent to the vein. Some clots found in the branches of the external saphena did not entirely block them. The fascia over the popliteal space was thickened and brawny from recent inflammation. The writer draws attention to the trifling injury which led to death; the absence of any symptoms of the condition found; the large extent to which the deep veins were involved without local discomfort or serious interference with health; the complete transference of the circulation from the deep to the superficial system of veins, and the capacity of the latter to carry on the entire venous circulation of the limb unaided and without causing œdema—for the swelling of the leg was not due to serous effusion into the subcutaneous tissue, but to the distension of the deep veins with clot, and exudation into the muscles and their areolar investments.

A. B. Shepherd (ib. ib., 412) records a case resembling these two in many points. A healthy man, æt. 49, slipped through the rounds of a ladder, and abraded his left shin. On the twenty-first day afterwards he had a fainting fit, and three days later a rigor followed by an attack of simple pleurisy; on the thirtieth day he suddenly fell down and died. The autopsy showed most extensive decomposition of the head, neck, and upper extremities; all the organs were healthy, but very much decomposed, the blood, with the following exceptions, being fluid. Coiled up in the apex of the right ventricle were three clots, one showing the impression of vein-valves. Only one branch of the pulmonary artery contained a small recent clot. On slitting up the left internal saphena vein its coats below the region of the wound were normal; near the wound they cut more rottenly, and where the smaller veins entered it the vein

was dilated. From this point upwards its internal coat as well as that of the veins dipping down to the deeper vessels was intensely red, more than bloodstained, and swollen. The femoral and popliteal veins were in the same condition, and in the latter lay the *débris* of a clot, non-adherent to the vessel-wall, and overlying a pair of valves. The writer remarks on the slight injury to the leg and the consequent thrombosis, the probably embolic pleurisy, the fainting fit and death due to the clots in the heart, and the agreement of one of the latter with the clot in the popliteal.

Egli, "Zur Aetiologie der Fettembolie" (3 cases, with autopsies), 'Untersuch. aus dem Path. Inst. zu Zurich,' 1873, 100. Mollière, "Note sur un cas de Thrombose très-étendue de la branche droite de l'Artére pulmonaire" (man, æt. 69, autopsy), 'Gaz. Hebd.,' 1873, 684. Mauthner, "Zur Lehre von der Embolie der Arteria Centralis Retinæ," 'Wien. Med. Jahrb.,' 1873, 195. P. Smith, "Embolism of Central Artery of Retina" (man, æt. 58, thickening and adhesion of aortic valves), 'Brit. Med. Journ.,' 1874, i, 452. S. Smith, "Subacute Rheumatism, extensive heart-disease, embolism, death" (man, æt. 34, embolism of middle cerebral artery, rupture of chordæ tend., fatty degeneration of heart), 'Lancet,' 1874, ii, 866. Liddell, "On Thrombosis of the Cerebral Arteries," 'Amer. Journ. Med. Sci.,' lxv, 364. Id., "On Thrombosis of the Arteries of the Extremities," ib. ib., 37. Ward, "Embolism of the Arteries of the Extremities" (man, æt. 32), 'New York Med. Journ.,' xix, 257. Lente, "Two cases of Thrombosis of the Arteries of the Lower Extremities, recovery, one with, and one without, amputation" (women, æt. 61 and 35), ib., xx, 48. Coombs, "Thrombosis following Injury of the Leg, recovery" (man, æt. 57), 'Lancet,' 1874, ii, 726. E. Crisp, "Heart Clot and Sudden Death" (woman, æt. 21, death on eighth day after childbirth), 'Path. Soc. Trans.,' xxiv, 46. J. Gay, "Varix on the Terminal Portion of the Saphena occluded by a dense Clot" (incomplete case), ib., 48. T. B. Peacock, "Disease of Aortic and Mitral Valves, with Embolism of the Middle Cerebral Artery" (see abstract under "Malformation"), ib., 49. J. Pollock, "Cardiac Disease and Embolism" (girl, æt. 19, gangrene of right leg, mitral incompetency, plugging of right iliac and femoral arteries), ib., 58. H. T. Butlin, "Aneurysm of the Right Subclavian Artery in the second part of its course undergoing a process of natural cure" (embolia in right subclavian and left femoral arteries in female), ib., 67.

## *Pericarditis.*

Kussmaul ("Ueber Schwelige Mediastino-Pericarditis und den paradoxen Puls," 'Berl. Klin. Woch.,' 1873, 433) writes on a variety of pericarditis which may be called callous mediastinal pericarditis, having well-defined clinical and anatomical characteristics. He recounts a case seen by Griesinger in 1854, and adds two others of his own, with the post-mortem results, in a youth, æt. 21, and a woman, æt. 34, and gives the particulars of another case very similar to them, which came under his notice while he was writing his paper. In these cases the pericardium is thickened interstitially, with tough callous patches on both surfaces and entire obliteration of its cavity. The same growth invades the mediastinum, constricting and twisting the larger vessels, and even obstructing their calibre. The clinical symptoms are those of chronic pericarditis, but in addition there is partial or complete absence of pulse in the arteries during inspiration, and, if the latter be sufficiently strong, swelling and not collapse of the cervical veins. In Griesinger's case the radial pulse could not be felt during inspiration, and the aorta was found firmly adherent to the sternum. The heart sounds were weak in Kussmaul's first case and absent in his second,

and the callous growths in both cases found to be looser and more recent than those in Griesinger's. In both the pericardium was universally adherent to the neighbouring organs; in the youth the ascending aorta was so compressed as to admit only the little finger, in the woman the growth had extended along the vessels to the trachea and œsophagus.

Bouchut publishes ('Gaz. des Hôp.,' 1873, 1130) the following:—A girl, aged a year and a half, had had, six weeks before, a pleurisy of the left side, which had left behind it a pleuritic rub at the base and an enormous quantity of effusion in the pericardium. The latter was punctured eight times, after which the patient died. The autopsy showed the presence of 800 grammes of sanious fluid in the pericardial cavity; mitral vegetations; swelling and redness of the aortic valves; general pleural adhesions, with semitransparent granulations on the surface of the pleuræ; abdominal adhesions. The writer remarks on the case and its diagnosis at length, and as a result of his observations gives the following among other conclusions:—Pericarditis with considerable effusion is not always an effect of tuberculosis; paracentesis should be performed in the fifth intercostal space close to the median line, the aspirator being preferred to a large trocar; small wounds of the heart are not dangerous. Paracentesis of the pericardium is very often only a means of putting off death for a time.

S. H. Chapman ('Wien. Med. Jahrb.,' 1873, 115) describes and gives woodcuts of the appearance of the endothelium in the healthy pericardium of batrachia, and the changes produced in it by opening the sac and irritating it. The cells of the endothelium swell up and then disappear, their place being taken by pus-cells and inflammatory cells. Other cells, resembling those of the endothelium, presented processes, and contained nuclei in stages of division.

Oekonomides, "Vier Fälle von Synechia Pericardii," Diss. Berl., 1873, pp. 32. Eisenlohr, "Ein Fall von Pyopneumopericardie" (empyema opening into pericardium), 'Berl. Klin. Woch.,' 1873, 472. Farquharson, "Case of Traumatic Pericarditis, with Hæmato-thorax" (boy, æt. 16, recovery), 'Med. Times and Gaz.,' 1873, i, 491. Bartleet, "Pericarditis with Effusion, aspiration of pericardium, immediate relief and ultimate recovery" (youth, æt. 20, acute rheumatism), 'Lancet,' 1874, ii, 866. Cory, "Case of Secondary Abscess following a Strangulated Omental Hernia, bursting into the pericardium" (man, æt. 32, abscess between upper surface of left lobe of liver and diaphragm, with small opening in latter from abscess to pericardium), ib. ib., i, 762.

### *Diseases of Myocardium.*

T. H. Green records a case ('Path. Soc. Trans.,' xxv, 47) of fibroid induration of the heart in a man, æt. 52, who had died suddenly, and of whom no previous history could be obtained. The organ was very much enlarged, weighing 20¾ oz. The left ventricle was much dilated, its walls measuring from half to three quarters of an inch in thickness, and cutting almost like a piece of tendon. The endocardium was considerably thickened, and opaque; the papillary muscles were almost completely converted into fibroid tissue. The right ventricle was also thickened; the valves were normal, there was general atheroma of the vessels, and the kidneys were slightly granular. The microscope showed development of fibroid tissue round the blood-vessels in the inter-

muscular septa of the heart, with various degrees of atrophy and fatty degeneration of the muscle-fibres themselves.

C. H. Fagge publishes (ib., 64) eleven cases of the same kind, occurring in men aged 40, 42, 43, 44, 55, 61, 66, 69, and 85, and in women aged 28 and 30. In speaking of the disease generally, he asserts that to the naked eye it presents characters which are, to a great extent, uniform in different cases, although they vary considerably in different parts of the same specimen, according to the degree of completeness to which the change has advanced. It is always more or less localised, and sometimes attacks only a very small tract. Microscopically the tissue is seen to consist of a perfectly developed fibrous tissue, forming wavy bands and fasciculi, which have embedded in them the heart's muscular fibres or their remains, having always the same direction as the old muscular fibres. The latter may be normal in appearance, or may have undergone more or less fatty degeneration. According to the writer fibroid disease of the heart is so constantly present in cases of cardiac aneurism as to justify him in expressing the opinion that the latter probably never occurs except as an accident in the course of the former affection. On the other hand, rupture of the heart, which is so common when there is local fatty degeneration of its muscle, appears very rarely to take place in fibroid disease. He thinks that the true pathological analogies of this process are those chronic changes in the arteries which are essentially inflammatory in their origin. The paper concludes with some remarks on the causes and symptoms of this fibroid disease.

Ponfick contributes ('Berl. Klin. Woch.,' 1873, 3), a paper on fatty degeneration of the heart. He distinguishes two chief groups of cases. The first includes those in which the fatty change is local and follows hypertrophy, due to obstructed circulation; for instance, as a consequence of various valvular affections, degeneration of the right heart in emphysema, chronic pneumonia, deformed thorax, &c.; degeneration of the left heart in cases of aortic contraction and sclerosis, aneurism, kidney affections, &c. His second group includes those cases in which the change attacks muscle antecedently normal; degeneration of the heart in acute diseases, or in consequence of certain poisons; and lastly, the chronic form of true or idiopathic fatty heart, which is characterised by a change in the whole organ, and generally by separate centres of degeneration, which attack especially the papillary muscles. But even this last group, which clinically and anatomically is true fatty heart, includes two essentially different forms. In illustration he gives two autopsies. The first is that of a strong, plethoric man, of 78, who died of apoplexy, from degenerated arteries; the second is that of a very weak, but not emaciated woman, of 35, in whose body no changes, in addition to the fatty heart, were found except extreme anæmia. These two types he names "the senile or plethoric form," and "the anæmic form." In both there is the fatty degeneration; in the one accompanied by changes in all the arteries and deposit of pigment in the muscle of the heart; in the other by vessels which may be narrow, but are otherwise normal, though they may have undergone those slight fatty changes in their inner or middle

coat which Virchow has shown to accompany chlorosis. In these cases there is generally found a fatty liver, with catarrhal jaundice and fatty changes in the glands of the stomach and the kidneys; but the most important alteration is in the blood, which is very poor in fibrin and red blood-cells. This contrasts strongly with the senile or plethoric form, in which all the organs are congested, and the quantities of fibrin and blood-cells are normal. In both, anæmia of the cardiac muscle is the starting-point; in the first from disease of the vessels, in the second from disease of the blood. A table of 38 cases shows the affections which in the latter form led to the primary anæmia.

In illustration of the same question H. Immermann gives ('Deut. Arch.,' xiii., 209) two cases of progressive pernicious anæmia[1] in a lad, aged 18, and in a woman, aged 31. The first, a shoemaker, previously healthy, had felt for six weeks loss of power on exertion, and suffered from dyspnœa and remarkable pallor. Suddenly he was seized with dimness of vision and epistaxis. The heart's dulness was increased, its impulse diffused; the pulse was frequent, there was a loud *bruit de diable*, several petechiæ on the lower extremities and back, and several large extravasations into both retina. A few days later there was increased temperature accompanied by copious flow of pale urine, of low specific cavity, but otherwise normal; there were no signs of leuchæmia. In spite of tonics, the pyrexia, the signs of anæmia, and the hæmorrhagic diathesis, lasted till death. No autopsy could be obtained. The second case was that of a married woman, æt. 31, also previously healthy, who presented symptoms of a precisely similar character. Here the post-mortem examination revealed only slight general anæmia, fatty degeneration of the heart, liver and kidneys, and slight enlargement, with hardness, of the spleen. With these cases he compares one of acute myelogenous leuchæmia in a girl, æt. 17; the attack followed typhoid. There was increasing weakness, pallor, a fluctuating gland-tumour at the angle of the right jaw, and petechiæ. The spleen was enlarged, there was increase in the number of white blood-corpuscles (1 to 20) and some rise in temperature; in addition to the signs naturally expected post mortem, there was marked though partial fatty degeneration of the heart, especially in the papillary muscles of the left side, hæmorrhages into the right retina, which was alone examined, hyperplasia of the bone-marrow, the tonsils, and the glands of the tongue.

F. A. Zenker (ib., 348) had pointed out in 1856 the connection between fatty degeneration of the heart, the hæmorrhagic diathesis, and anæmia. The case was that of a woman whose symptoms agreed with those of Immermann's cases. Here also, post mortem, was general anæmia, fatty degeneration of the heart, extravasation into the abdominal cavity, and capillary apoplexies in the brain, and ecchymoses in other tissues.

L. Perl ('Virch. Arch.,' lix, 39) has made experiments on dogs in

[1] This Idiopathic or Pernicious Anæmia was first described by Addison ("On Supra-renal Capsules," see reprint by this Society of Addison's works, p. 212); see also Wilks ('Path. Anat.,' ed. 1859, p. 459), and 'Guy's Hosp. Rep.,' ser. 3, vol. iii, p. 203.—*Rep.*

reference to the question whether simple anæmia can produce fatty degeneration of the heart. He found this change in animals which had been reduced, by repeated venesections, to a state of fatal marasmus, but not in cases in which the bloodletting was frequent, but not so excessive. The papillary muscles of the left side of the heart were found to be most degenerated, those of the right almost as much so; less so the wall of the left ventricle, still less the left auricle and right ventricle, and least of all the wall of the right auricle.

O. Fräntzel writes (ib., lvii, 215) on hypertrophy and dilatation of the heart caused by the fatigues of war. He met with neither in the Danish war of 1864 or the Austrian war of 1866, the former not causing any long marches, and the latter being short in duration. But in the French war of 1870, in which the marches were long and forced and the hardships great, he found both changes in men who previously to the war were healthy and afterwards became the subjects of dyspnœa. He gives the histories and diagnosis of seven cases in full. Of 19 cases observed, there was diagnosed hypertrophy and dilatation of the left ventricle in ten, of the right in two, and of both ventricles in three. In two there was simple dilatation of the left, and in two of the right. There was no evidence of valvular mischief, chronic lung disease, kidney affection, or vascular change, in any of the 19 cases.

A. B. R. Myers showed ('Path. Soc. Trans.,' xxiv, 82) two specimens of extensive hypertrophy with dilatation of heart and disease of the aortic valves and aorta in soldiers as typical instances of this affection in the army. They are, according to him, purely dependent for their origin and development on overstrain of the heart in its endeavours to force the blood beyond the numerous points of constriction which are produced by tight clothing and accoutrements, and to the consequent over-dilatation, followed by degeneration, of the aorta within the thorax.

T. B. Peacock records ('Path. Soc. Trans.,' xxiv. 37) the following case. A man, æt. 38, who had suffered from dyspnœa on exertion for a year before his death, with a feeling of uneasiness at the heart and symptoms of dyspepsia latterly, was suddenly seized with sickness and shivering, followed by collapse and death in a few hours. The post-mortem examination showed the pericardium much thickened, and the two surfaces united by firm flakes of lymph. The heart was generally large, but free from valvular affection. A tumour about the size of an orange was found embedded in the posterior wall of the heart, and projecting on each side of the septum into the ventricles. Its walls on the right side were so thin that pus exuded on pressure, and on cutting into the thin wall on the left side, numerous hydatids, varying in size from peas to plovers' eggs, escaped from the cyst mixed with pus. The lungs, liver, and kidneys, were perfectly normal.

Curschmann, "Zur Lehre vom Fettherz," 'Deut. Arch.,' xii, 193. Seitz, "Zur Lehre von der Ueberstrengung des Herzens," ib., xi, 485. Vanden Bergh, "Stéarose du Cœur" (woman, æt. 51, death from typhoid), 'Presse Méd. Belge,' 1874, 115. Wilks, "Idiopathic Anæmia," 'Brit. Med. Journ.,' 1874, ii, 680. Fothergill, "Strain in its relation to the Circulatory Organs," ib., 1873, i, 281. Moore, 'Observations on the Shape of the Chest in cases of Hypertrophy of the Heart,' London, 1873, pp. 32.

Perroud, "Anévrysme du Cœur" (woman, æt. 78, autopsy), 'Lyon Méd.,' xvi, 102.
Magnan et Micrzejewsky, "Des Lésions des parois ventriculaires et des parties sous-jacentes dans la Paralysie générale," 'Arch. de Phys.,' v. 52.

## *Endocarditis.*

W. Moxon, writing (Lancet, 1873, ii, 622), on the immediate causes of the changes of the heart as produced in endocarditis, draws attention to the fact that the inflammation of the endocardium is always circumscribed. Several such patches of inflammation, apparent in the presence on the membrane of granulations or fibrin, may occasionally be found, but except in the rarest cases, they are within reach of a fibrinous clot on a valve, which, no doubt, struck the affected part in the action of the heart. The study of a great number of cases has led him to conclude that such friction with fibrin clots, together with mechanical strain, make the principal, if not the sole, direct cause of endocarditis ; rheumatism and other general states creating only a vulnerability of the fibrous structures, so that they cannot resist the irritation of the friction. After comparing endocarditis with other inflammations, he describes its special characters, defining it to be either plastic or ulcerative, and insisting that the occurrence of ulceration is a rare and formidable complication of plastic endocarditis, by no means necessarily, as some writers hold, a further stage of it. This process he describes as first an abrasion followed by a breach of the inflamed surface of a valve. The force of the heart drives the blood into the hollow so formed, and presses before it the remaining layer of the endocardium, thus forming an acute aneurism of the valve, such aneurism bulging into the left auricle or left ventricle, according as the mitral or aortic valves are affected. The ulceration or the heart's action easily works through the remaining layer, and perforates the valve. Such perforations are always covered with "vegetations," *i. e.* nodular masses of fibrin which hide the opening, and increasing in size and becoming calcareous, by friction start ulceration in the wall of the heart where they come in contact with it.

Lancereaux ('De l'Endocardite végétante ulcéreuse et de ses rapports avec l'Intoxication palustre 'Arch. Gén.,' xxi, 672) holds that the endocarditis occurring in acute rheumatism and that in puerperal fever are essentially different processes. The former is most extensive in character, attacking the whole circumference of the mitral valve, while the latter is always localised and circumscribed; the former, again, consists in the formation of a tissue which has a tendency to organization, cicatrization, and shrinking, with their results, the latter gives rise to the production of a tissue, which sets up irritation and swelling of the valves, with a varying number of vegetations; the true organization of the latter is impossible, and their destruction leads to secondary infection of the system. In his present paper he tries to show that there is another form of endocarditis accompanied by vegetations and ulceration; its seat is generally the aortic valve, and it occurs most frequently in persons exposed to ague and malarial poisons. He gives at length five cases in illustration of this point, and mentions shortly a few others. The chief points in the diagnosis of ulcerative endocarditis

are the severe general constitutional disturbance, and especially the pyrexia. He has repeatedly found vibrio-like bodies in this affection.

R. King gives ('Path. Soc. Trans.,' xxiv, 40) a case of extreme aortic stenosis in a woman, æt. 55. She had had a severe attack of rheumatic fever at the age of 33, followed by another five years later, but had not complained of any cardiac symptoms till half a year before death. The apex of the heart could be felt in the seventh intercostal space, and the area of dulness was greatly increased. There was a loud, coarse, and unusually long systolic murmur everywhere over the precordia, and considerably beyond. The dyspnœa at times was very urgent, she had frequent fainting-fits, and died suddenly while sleeping. The pericardium was found to be universally adherent. On slitting open the aorta down to the level of the valves the aortic opening was found to be almost completely occluded by a calcareous mass which was merely perforated near its centre by an orifice barely admitting a No. 6 catheter, and so effectually overgrown by vegetations that water would not pass either from the aorta into the ventricle or *vice versâ* without considerable pressure. The walls of the left ventricle, which was dilated, measured ten lines in their thickest part. The mitral and tricuspid valves, though slightly thickened, were competent; the liver was nutmeg and cirrhotic, the kidneys contracted.

Eberth, "Ueber diphtherische Endocarditis," 'Untersuch. aus dem Path. Inst. zu Zurich,' 1873, 95. Krebs, 'Ueber einen Complicirten Fall von Endocarditis ulcerosa,' Berlin, 1873, pp. 31. Laure, "Endomyocardite ulcéreuse avec Embolies multiples," 'Lyon. Méd.,' xiii, 221. Gray, "Cases of Endocarditis proving fatal with symptoms of blood-poisoning" (boy, æt. 15; woman, æt. 38; man, æt. 21; autopsy in last case), 'Med. Times and Gaz.,' 1874, i, 474. Murchison, "Ulcerative Endocarditis, septicæmia, death" (man, æt. 56, highest temperature 105·3°, autopsy), 'Lancet, 1873, i, 909. Whipham, "Old Blood-clot adherent to the Wall of the Left Ventricle and Septum of the Heart, producing thickening of the endocardium and degeneration of the muscular tissue" (man, æt. 58), ib. ib., i, 5. Waters, "Clinical Lecture on Aortic Insufficiency," ib. ib., ii, 291. Murchison, "Double Aortic Disease, with severe angina pectoris, marked relief from nitrite of amyl" (man, æt. 42, with second case in man, æt. 35, whose heart weighed 2 lb.), 'Brit. Med. Journ.,' 1874, i, 546. Jacques, "Insuffisance de l'Orifice Aortique, insuffisance mitrale, hypertrophie du Cœur, pleuropneumonie à gauche, mort, autopsie" (woman, æt. 68), 'Presse Méd. Belge,' 1874, 65. Duroziez, "De double Souffle et du double Claquement Aortique" (in opposition to Traube's views on the double sound in the crural artery in aortic insufficiency), 'Gaz. Hebd.,' 1873, 104. Thompson, "Case of Incompetency of the Aortic and Tricuspid Valves, death from perforation of the duodenum," 'Med. Times and Gaz.,' 1873, i, 139. Sansom, "On a case of Mitral Stenosis, with cardiac hypertrophy and dilatation, manifested by a presystolic murmur" (boy, æt. 9), ib., 1874, i, 34. Peacock, "Case of Obstructive Mitral Disease," 'Lancet,' 1874, i, 613. Nixon, "On Functional Mitral Murmur," 'Dubl. Journ.,' lv, 562. Bischoff, 'Die Erkrankungen an der Mündung der Pulmonal-arterie,' Berlin, 1873, pp. 30. T. B. Peacock, "Disease of Aortic and Mitral Valves, with embolism of the middle cerebral artery" (see abstract under "Malformation"), 'Path. Soc. Trans.,' xxiv, 49. J. Pollock, "Cardiac Disease and Embolism" (of right iliac and femoral arteries in girl, æt. 19, vegetations on mitral valve), ib., 58. S. Coupland, "Gouty Concretions on the Aortic Valves" (of phosphate and carbonate of lime in man, æt. 65,), ib., 69. J. S. Bristowe, "Rupture of the Chordæ Tendineæ, consequent symptoms of heart disease" (man, æt. 62, pleural effusion, tapping, mitral regurgitation, embolia of kidney, calcified arteries), ib., 72. Id., "Rheumatic Affection of the Membranes of the Cord (?), Peri- and Endo-carditis, Rupture of Chordæ Tendineæ" (man, æt. 21, mitral regurgitation, pleuritic effusion), ib., 75. A. Silver, "Specimens of Disease of the Aortic

Valves and Aorta" (from three men, æt. 28, 24, and 44; and a woman, æt. 50), ib., 80. Legg, "Mitral Constriction, well-marked Concentric Hypertrophy of the Left Side of the Heart," ib., xxv, 105.

### *Rupture of Heart; Wounds.*

Le Piez, 'Études sur quelques cas de ruptures dites spontanées du Cœur,' Paris, 1873. Van Tours, "Rupture du Cœur" (woman, æt. 70, anterior wall of right ventricle), 'Presse Méd. Belge,' 1874, 117. Hill, "Case of Dissecting Rupture of the Heart" (woman, æt 65, fatty degeneration), 'Brit. Med. Journ.,' 1873, i, 403. Amory, "Rupture of the Right Auricle of the Heart from Sudden Compression of the Thorax" (between two railway carriages, no fracture of the ribs), 'Bost. Med. Surg. Journ.,' lxxxix, 577. A. Clark and H. Smith, "Rupture of the Heart" (woman, æt. 60, run over), "Path. Soc. Trans.,' xxv, 48. Callender, "Removal of a Needle from the Heart, recovery of the patient" (man, æt. 31), 'Med.-Chir. Rev.,' lvi, 203. Richet, "Nouvel exemple de tolérance du Cœur pour le Traumatisme" (suicide), 'Arch. Gén.,' xxiii, 314. Hicquet, "Perforation de Cœur par une balle avec intégrité complète du Péricarde" (man, æt. 24), 'Presse Méd. Belge,' 1874, 84. Steudener, "Zur Casuistik der Herzwunden," (man, æt. 23, suicide, death 15 weeks later, autopsy), 'Berl. Klin. Woch.,' 1874, 79.

### *Angina and other Neuroses of the Heart.*

M. Huppert ("Reine Motilitätsneurose des Herzens," 'Berl. Klin. Woch.,' 1874, 221) records the case of a lunatic, aged 40, in whom paroxysmal attacks of increased heart action were succeeded by very peculiar phenomena. The attack came on suddenly, the heart-beats rose to 204—208 in the minute, the heart was apparently enlarged in every way, its action strong, and its sounds clear and powerful. While the jugular veins were swollen and undulating, the radial pulse could not be felt; only a continuous slow moving onwards of the blood; and the number of heart beats could be counted only by auscultation of the heart itself. The respirations were only slightly increased, there was some bronchial catarrh, and at the commencement the temperature was very slightly if at all elevated, though later it rose 1—2° C. During the paroxysm the spleen and liver were swollen, the stools were relaxed, and the urine, which before was normal, contained albumen, hyaline casts, and blood-cells. The patient complained of no particular pain, certainly nothing resembling angina pectoris. The paroxysm ceased as suddenly as it had commenced, spontaneously, or after the exhibition of infusion of digitalis. All the symptoms disappeared in a more or less short time after the return of the pulse to its normal condition (60—70). Huppert looks upon the cause of these attacks as due to disordered innervation, especially of the pneumogastric nerve, the whole train of symptoms being extremely like those resulting from section of that nerve.

E. Metschnikoff and J. Setschenow give ('Centralbl.,' 1873, 163) the results of their experiments on the tortoise as to the action of the pneumogastric on the heart, and the latter writer publishes (ib., 289) further observations on the heart of the frog. The conclusions at which they arrive are purely provisional. G. Giannuzzi is also reported (ib., 821) as adding a contribution to our knowledge of the motor nerves of the heart.

v. Hubner, "Zur Therapie der Angina pectoris," 'Deut. Arch.,' xii, 514. Vignier,

"Sur l'Angine de Poitrine," 'Arch. Gén.,' xxii, 671. Allan, "Case of Functional Cardiac Disorder cured by administration of Digitalis" (girl, æt. 12), 'Brit. Med. Journ.,' 1874, i, 174. Boulton, "Case of Cardiac Depression from Shock" (woman, æt. 69), ib. ib., 611. Miller, "Angina relieved by inhalation of Nitrite of Amyl," ib., ii, 682. Moore, "Case of Cardiac Hyperæsthesia" (woman, æt, 34), ib. ib., 708. (And see under "Exophthalmic Goître.")

### *Malformation of the Heart, &c.*

T. B. Peacock describes ('Path. Soc. Trans.,' xxiv, 49) the case of a woman, æt. 35, who had suffered from several attacks of rheumatic fever, and who died after paralysis of the left side. In addition to disease of the aortic and mitral valves and embolism of the middle cerebral artery, there was found a congenital malformation of the former valve. There were only two segments, of which one was very large, and displayed on its upper surface two raphès or cross bars, so as partially to divide it into three imperfectly separated sacculi. The larger segment represented the right and posterior valves, and the right coronary artery arose from one of the sacculi. The other segment was greatly thickened and shallow. The edges of the valves, as also those of the mitral, were studded with small recent vegetations. From recent observations the writer is inclined to give up his earlier view, according to which the blending of two or more segments was probably produced by intra-uterine disease, and to regard them as dependent on arrest of development. A plate and measurements of the heart are given.

H. C. Rose publishes (ib., 68) the case of a girl, æt. 13, who from early childhood had exhibited symptoms of obstructed circulation, with dyspnœa and tumultuous action of the heart, these symptoms decreasing during her stay in Switzerland, in a more or less rarified atmosphere. She was found dead in her bed. The left ventricle was considerably hypertrophied; in place of the aortic valves was a cone-like, firm, and inelastic semi-cartilaginous ring projecting into the aorta, having in its centre a small oval opening which had no power of closing, and through which blood must have regurgitated at every beat. The other valves and the rest of the viscera were normal. (Cf. with this R. King's case of aortic stenosis, abstracted under "Endocarditis," p. 161 of this Rep.)

Schumacher ('Wien. Med. Woch.,' 1873, No. 37) gives the following description of congenital deficiency in a female, æt. 20. The pericardium was strongly adherent to the sternum and lungs, and tensely stretched, but contained little serum. The heart was unusually large, its base pushed to the left, its general position showing a great development of the right as compared with the left side. The endocardium was healthy; the openings of the venæ cavæ were distinctly dilated; the lumen of the pulmonary artery was twice as large as that of the aorta. The right ventricular wall was five lines in thickness, its cavity largely increased; the columnæ carneæ and papillary muscles were only slightly developed, and the inner flap of the tricuspid valve altogether wanting. The chordæ tendineæ from the anterior and posterior flaps were long and ill-developed. Both the arterial and the venous openings were dilated; the semilunar valves

were normal. The left ventricular wall was 2½ lines thick, the cavity dilated; the mitral valve had only one flap, and in other respects the inner surfaces of the two ventricles were alike, the aortic valves, like the pulmonary, being normal. There was amyloid degeneration of the kidneys.

S. M. Bradley gives ('Brit. Med. Journ.,' 1873, i, 33) the history and autopsy of a case of tricœlian human heart. The child's breathing was noticed soon after birth to be hurried; on the afternoon of the second day of life the skin was cyanotic, and next day he died. The heart alone was examined. It was normal in size, weight, and situation, but consisted of two auricles and one ventricle, from which a single artery arose, giving off, first of all, two pulmonary arteries, and then pursuing its course in the ordinary direction of the aorta, it gave origin to the usual number of aortic branches. The single emergent vessel was larger than either the pulmonary artery and aorta in normal cases, and arose from the right and anterior border of the ventricle. It had three well formed semilunar valves, and, half an inch from the heart, gave origin to the two pulmonary arteries, which were situated close together, the left being at a higher level than the right. The right auricle was larger than usual, the left extremely small; the foramen ovale was large and patent; the entrance of the veins into each auricle was normal. There was no trace of a ventricular septum, but the left wall of the single ventricle was double the thickness of the right. The auriculo-ventricular valve communicated with the right auricle above, and in character approached the mitral rather than the tricuspid. The notice is accompanied by two woodcuts, and concludes with certain facts of development which point to the case being one of arrested growth in the ninth week of intra-uterine life.

C. H. Fagge describes ('Guy's Hosp. Rep.,' xviii, 23) a case of patent ductus arteriosus attended with a peculiar diastolic murmur. The patient was a woman, æt. 42, who had been under the writer's care in 1869. At that time two views had suggested themselves—one that it was due to a communication between the aorta and pulmonary artery; the other that it was a modification of an auricular systolic murmur. The autopsy of the patient, about three years later, showed that the ductus arteriosus formed a short canal, communicating with the aorta by a somewhat oblique opening, and allowing a No. 6 or No. 7 catheter to pass through it. The kidneys were granular and cystic; the left ventricle dilated and hypertrophied, as also the right in equal proportion. The enlargement of the right auricle was extreme, and its endocardium opaque. The tricuspid and mitral orifices were both dilated. The writer remarks shortly on the rare occurrence of a murmur with persistent ductus arteriosus, and gives a plate of the heart and arteries.

A. Campbell, "Perforate Foramen Ovale in a fatal case of Enteric Fever" (girl, æt. 14, twin, with engraving of cribriform valve), 'Glas. Med. Journ.,' N. S., vi, 99. Fredet, "Persistance du trou du Botal chez un Enfant de cinq ans" (boy, still alive?), 'Gaz. des Hôp.,' 1874, 234. C. H. Carter, "Supernumerary Pulmonary Valve" (boy, æt. 1⅓), 'Path. Soc. Trans.,' xxiv, 48. W. H. Broadbent, "A Study of a case of Heart Disease, probably malformation" (opening in septum ventriculorum?), 'Med.

Times and Gaz.,' 1873, i, 110. Sansom, "Case of Disease of Pulmonary Valves and Right Ventricle, with communication between the ventricles" (girl, æt. 8½), 'Brit. Med. Journ.,' 1873, i, 611. Gelau, 'Ein Fall von Offenbleiben des Septum ventriculorum sowie des Foramen ovale bei Erhaltung des Lebens bis zum 20 Jahre, ohne Cyanose,' Berlin, 1873, pp. 31. Peacock, "Malformation of the Heart, atresia of the pulmonary artery, aorta arising from the right ventricle, pulmonary circulation maintained through the ductus arteriosus" (boy lived nearly 11 months), 'Path. Soc. Trans.,' xxv, 62. Balfour, "Case of Congenital Malformation of the Heart" (girl, æt. 19, still living), 'Lancet, 1874, ii, 409. Lusk, "Case of Acardia," 'New York Med. Journ.,' xix, 176.

## *Aneurism, &c.*

R. J. Lee calls attention ('Lancet,' 1873, i, 129) to the changes produced in the recurrent laryngeal nerves in cases of thoracic aneurism. In a case of paralysis of the right vocal cord produced by an aneurism of the innominate the right pneumogastric nerve, where it was in contact with the sac, presented great increase in vascularity, a dark venous colour, and an œdematous and easily lacerable condition. A nervous filament, little thicker than a thread, was all that remained of the right recurrent, after separating the fibro-cellular tissue which surrounded it. In two other cases, in which the symptoms were less severe, the nerve was reduced to half its ordinary size. In other cases the nervous cords may be found stretched and reduced to a fine thread of fibrous tissue, the nerve tissues being entirely wanting.

L. Shapter, after describing ('Med. Times and Gaz.,' 1874, ii, 169) a case of aortic aneurism in a man, aged 60, makes the following remarks:—1. Murmur is of little or no diagnostic value in this affection, but must be regarded as a purely accidental phenomenon. 2. Accentuation of the aortic second sound, as the result of the specially altered condition of the vessel, and as present in any region but over the immediate neighbourhood of the heart and aorta, is characteristic of aneurism. 3. The treatment, whether curative or symptomatic, upon which most reliance must be placed, consists in the administration of large and frequently repeated doses of iodide of potassium, accompanied with rest. 4. The iodide acts by consolidating and thickening the aneurismal sac-wall, and not by any process of clot-formation.

Krauspe ('Berl. Klin. Woch.,' 1873, 120) gives the case of a man, aged 64, the subject of acute bronchitis, in whom diffuse aneurismal dilatations were noticed in the carotids and their branches, especially on the left side, and in the abdominal aorta.

O. Bollinger has found ('Virch. Arch.,' lix, 341) degenerative changes in the vascular system of the horse, analogous to those occurring in the human subject.

Tillaux, "Du danger qu'il y a de réduire les Anévrismes de la crosse de l'Aorte," 'Bull. Gén. de Thérap.,' t. 85, p. 231. Soulier, "Anévrysme de l'Aorte" (man, æt. 63, small aneurism of the ascending aorta inside the pericardium, bursting into latter), 'Lyon Méd.,' xiii, 378. Chaboud, "Observation d'un Anévrysme artérioso-veineux de la crosse de l'Aorte, dont la poche communique avec le tronc brachio-céphalic veineux gauche," ib., xiv, 478. Hanot, "Anévrysme de la crosse de l'Aorte, avec compression de la bronche, de l'artère pulmonaire, et du pneumogastrique gauches, atrophie du cœur, pneumonie fibro-caséeuse et granulations du poumon

gauche," 'Gaz. Méd.,' 1873, 203. Anderson, "Clinical Lecture on two cases of Aneurism of the Arch of the Aorta treated by Galvano-puncture," 'Lancet,' 1874, i, 825. Id., on case of same, ib., 1873, i, 261. Bastian, "Clinical Lecture on a case of Aneurysm of the Arch of the Aorta treated by Galvano-puncture," 'Brit. Med. Journ.,' 1873, ii, 594. Keith, "Case of Aneurysm of the Arch of the Aorta treated successfully by iodide of potassium," 'Edin. Journ.,' xviii, 1077. Greenhow, "Aneurism of first part of Arch of Aorta, Ulceration and Perforation of Trachea and Œsophagus, death from pressure on trachea" (man, æt. 38), 'Med. Times and Gaz.,' 1874, ii, 685. Kohts, "Aneurysma des Truncus anonymus," 'Berl. Klin. Woch.,' 1873, 1. Pooley, "Tracheotomy for Relief of Dyspnœa, death on the table from rupture of an unrecognised aneurism" (of innominate, in man, æt. 34), 'New York Med. Journ.,' xix, 509. Philipson, "Notes on two cases of Thoracic Aneurism," 'Brit. Med. Journ.,' 1873, i, 612. Leech, "Thoracic Aneurism" (man, rupture into left pleural cavity, absorption of bodies of third, fourth, and fifth dorsal vertebræ, and fourth and fifth ribs), ib., 1874, i, 111. McNalty, "Case of Thoracic Aneurism, threatened rupture of the sac externally, consolidation of the tumour under treatment" (man, æt. 35, tertiary syphilis, iodide of potassium, fatal termination), 'Med. Times and Gaz.,' 1873, i, 569. De Lisle, "Thoracic Aneurysm, consolidation of the tumour under treatment," ib., ii, 228. Ralfe and Smith, "Case of Thoracic Aneurism treated by galvano-puncture, fatal result" (man, æt. 41), ib., 1874, i, 67. Browne, "Intrathoracic Aneurism treated by electrolysis" (man, æt. 33), 'Lancet, 1873, ii, 264. Beck, "Case of Aneurism of the Descending Aorta treated by galvano-puncture" (man, æt. 49, death, autopsy), ib. ib., 550. Greenhow, "Case of Abdominal Aneurism successfully treated by proximal pressure of the aorta" (man, æt. 28), 'Med.-Chir. Trans.,' lvi, 385. Wolff, "Heilung eines Aneurysma Aortæ abdominalis," 'Berl. Klin. Woch.,' 1873, 314. Burder, "Case of Abdominal Aneurism" (man, æt. 31, autopsy), 'Med. Times and Gaz.,' 1874, ii, 335. Habershon, "Three cases of Aortic Disease" (in men, æt. 39, 56, and 55; in the first there was found an ulcerative communication between the aorta and pulmonary artery; in the other two death was caused by the rupture of an aneurismal sac), 'Lancet,' 1873, i, 274. Ebstein, "Aneurysma einer unpaaren Art. cerebr. antic. (art. cerebr. ant. communis)," 'Deut. Arch.,' xii, 617. Magnus, "Aneurysma arterio-venosum retinale," 'Virch. Arch.,' lx, 38. Crisp, "Traumatic Aneurysm in the Common Fowl," 'Path. Soc. Trans.,' xxiv, 84. Dowse, "Spontaneous cure of Aneurysm of the Transverse Portion of the Arch of the Aorta and Innominate Artery, the sacs being filled up with coagulable fibrin, leaving a channel for the transmission of blood to the right subclavian and carotid arteries" (female, æt. 64), ib., xxiv, 39. G. Johnson, "Aneurysm of the Arch of the Aorta pressing on the left pneumogastric and recurrent nerves, and paralysing both vocal cords" (man, æt. 45), ib., 42. Coupland, "Diffuse Aneurism of Thoracic and Abdominal Aorta rupturing into Left Lung and Pleural Cavity" (man, æt. 27), ib., 54. C. T. Williams, "Aneurysm of the Arch of the Aorta practically cured" (man, æt. 38), ib., 62. Butlin, "Aneurysm of the Right Subclavian Artery in the second part of its course, undergoing a process of natural cure" (female, embolism of the subclavian and left femoral artery), ib., 67. Peacock, "Very large Aneurism of the Descending Aorta, forming a tumour in the left dorsal region" (man, æt. 52), ib., xxv, 43. Id., "Partial Rupture and Separation of the Coats by the Extravasated Blood, 'dissecting aneurysm'" (man, æt. 61), ib., 59. Ralfe, "Case of Aneurysmal Dilatation of the Sinuses of Valsalva" (Chinaman, æt. 25), ib., 45. F. Taylor, "Aneurysm of the Arch of the Aorta opening into Pulmonary Artery" (man, æt. 39), ib., 56. C. T. Williams, "Double Aneurysm of the Descending Aorta bursting into the Left Pleura" (man, æt. 37), ib., 99. G. C. Franklin—1. "Aneurism of Arch of Aorta, rapidly fatal from sudden dyspnœa" (man, æt. 31, autopsy). 2. "Pulsating Tumour of the Chest (aneurism), rapid disappearance of tumour and relief to all the symptoms; discharged at own request after six weeks' treatment; sudden death from rupture of aneurism two months afterwards" (man, æt. 36, no autopsy), 'Med. Times and Gaz.,' 1874, ii, 362. Id., "Chronic Phthisis, Broncho-pneumonia, Aneurism of Arch of Aorta, death" (man, æt. 41, autopsy), ib. ib., 549.

Papers relating to other affections of blood-vessels are—

Erman, "Ein Fall von angeborener Stenose der Aorta an der Einsenkungsstelle des Ductus Botalli," 'Berl. Klin. Woch.,' 1873, 217. Kulenkampff, "Ueber regelwidrige Enge des Aortensystems," ib., 89. Krauspe, "Ein Fall von diffuser Erweiterung des Arteriensystems," ib., 121. Stoll-Krotowski, 'Stenosis Aortæ congenita,' Berlin, 1873, pp. 32. Purser, "Narrowed Aorta, Disease of Mitral Valve, arrested Sexual Development, Pneumonia" (boy, æt. 18), 'Dubl., Journ.,' lvi, 466. Moxon, "A case of Inflammation of the Aorta causing Contraction of its Ascending Part and Fatal Ischæmia," 'Guy's Hosp. Rep.,' xviii, 325. Pollock, "Obstructed Circulation in the Left Arm, accompanied by a varicose state of the veins," 'Path. Soc. Trans.,' xxiv, 84. Payne, "Fibroid Thickening round Branches of the Pulmonary Artery," ib., xxv, 49. Meschede, "Varix verus des Sinus duræ Matris falciformis," 'Virch. Arch.,' lvii, 525.

## E. Diseases of the Organs of Digestion.

### *Affections of the Mouth, Pharynx, and Salivary Glands.*

P. Hildebrand, in an inaugural dissertation (Berlin, 1873, pp. 32) on noma (ulcerative stomatitis) writes on the etiology of the affection, based on 201 cases collected from other authors and five cases of his own. He thinks that it is more prevalent in low-lying regions; that it is really epidemic, though sometimes termed endemic; that the female sex is more liable to it than the male; that children are most liable to it up to the age of seven years, and less so up to fifteen; he can find only twenty cases amongst adults. The affection may occur at any season of the year, and patients in feeble health or debilitated by disease are most liable to take it. In conclusion he considers it to be a purely local disease.

Feuvrier, "Relation d'une épidémie de Stomatite ulcéreuse," 'Rec. de Mém. de Méd. Mil.,' xxix, 449. Debove, "Du Psoriasis buccal," 'Arch. Gén.,' xxiii, 433. Mauriac, "Du Psoriasis de la Langue et de la Muqueuse buccale," 'Union Méd.,' xvi, 596. Petrowski, "Amygdalite Unilatérale inflammatoire non-spécifique, terminée par gangrène, paralysie unilatérale du voile du palais et du pharynx, œdème de la glotte, paralysie bilatérale du voile du palais, du pharynx et du larynx, mort," 'Gaz. des Hôp., 1873, 747. Bouchut, "Sur la Nature et le Traitement des Oreillons," 'Compt. Rend.,' lxxvi, 1339. Gillet, "Mort subite dans un cas d'Oreillons," 'Gaz. des Hôp.,' 1873, 1122. Bouchaud, "Kyste salivaire de la Parotide," ib., 44. Demarquay, "Lipome sous-parotidien," ib., 102. Desprès, "Abcès rétropharyngien, adénite rétropharyngienne" (boy, æt. 16), ib., 250. Brochin, "De l'Érysipèle du Pharynx," ib., 1874, 34. Flammarion, "Érysipèle du Pharynx," ib., 91. Marotte, "Fébri-névralgies de l'isthme du gosier et du pharynx simulants les angines inflammatoires, et guéries par le Sulfate de quinine et les stupéfiants," 'Bull. Gén. de Thérap.,' t. 87, p. 97. Sidlo, "Pharynx-erkrankungen," 'Wien. Med. Woch.,' 1873, No. 32. Oxley, "Retropharyngeal Abscess" (girl, æt. 2), 'Brit. Med. Journ.,' 1874, ii, 371.

### *Affections of the Œsophagus.*

Périer, "Anomalie de l'Œsophage, oblitération du bout supérieur, ouverture du bout inférieur dans le conduit aérien au niveau de la bifurcation de la tracheé" (boy, lived five days, with engraving), 'Gaz. des Hôp.,' 1874, 93. Bailey, "Rupture of the Œsophagus" (man, æt. 22, autopsy, rent three quarters of an inch in length, one inch above cardiac orifice of stomach), 'New York Med. Journ.,' xvii, 517. Mason, "Carcinoma Œsophagi, Gastrotomy, Death" (man, æt. 58), 'Lancet,' 1873, i, 131. Allan, "Case of suspected Malignant Stricture of the Œsophagus; relief under the administration of Bromide of Potassium and the Tincture of the Muriate of Iron" (man, æt, 60), ib., 45. Richardson, "Stricture of the Œsophagus," ib. ib., 596,

Fussell, "Notes on a Fatal Case of Dysphagia, with an abundant flow of saliva" (man, æt. 47), ib. ib., 625. Jaap, "Stricture of the Œsophagus treated by a new Dilator," ib. ib., 769. Mackenzie, "Clinical Lecture on Disease of the Œsophagus, with special reference to Œsophageal Auscultation," ib., 1874, i, 753. Hulke, "A case of Œsophagismus (spasmodic stricture of the œsophagus) in a Young Boy" (æt. 10), 'Clin. Soc. Trans.,' vi, 52. Thornton, "Two cases of Cancer of the Œsophagus" (women, æt. 31 and 42), 'Path. Soc. Trans.,' xxv, 112. Crisp, "Œsophageal Obstruction in a Cock," ib., 276. Rayss, "Schwere Krankheitszufälle in Folge von Verschlucken fremder Körper," 'Virch. Arch.,' lviii, 321. Emminghaus, "Von dem Einfluss der Respirationsbewegungen auf die Luft in der Schlundsonde beim Liegen im Oesophagus und Magen," 'Deut. Arch.,' xiii, 446.

*Affections of the Stomach.*

C. Hilton Fagge writes ('Guy's Hospital Reports,' xviii, 1) on acute dilatation of the stomach, of which he gives the notes of two cases, together with two similar ones already published in the 'Path. Soc. Trans.' (iv, 137) and in Hughes Bennett's 'Principles and Practice of Medicine' (3rd edition, p. 659). All four cases were examined post mortem. He thinks that the following conclusions are fairly deducible from them:— A. Acute dilatation of the stomach may arise in young subjects in whom that organ may have been previously healthy; the process is more or less gradual, at first producing no symptoms; when the latter occur they are sudden in their onset, of great severity, and may destroy life in a few days. The dilatation may be the only post-mortem changes found, or it may have supervened upon some other morbid alteration in the alimentary canal. B. Its signs are (1) a rapidly increasing distension of the abdomen, which is unsymmetrical, the left hypochondrium being full, while the right is completely flattened; (2) the existence of a surface-marking descending obliquely towards the umbilicus from the left hypochondrium, corresponding with the dropped-down lesser curvature of the stomach, this line appearing to descend with each act of inspiration; (3) the presence of fluctuation in the lower part of the abdomen; (4) the occurrence of splashing when the distended part of the abdomen is manipulated; (5) the presence of a uniformly tympanitic note over a large part of the distended region when the patient lies flat on his back. Above the pubes, on the other hand, there may be dulness on percussion simulating that of a distended bladder. If the abdominal walls be very rigid and the recti muscles prominent, the characters numbered (1) and (2) may be absent, but those numbered (3) and (4) remain. All of them may disappear for a time after copious vomiting. C. Its symptoms are those of severe abdominal disease, without evidence of peritonitis or lesion of the intestines; vomiting, more or less constipation, and scanty urine. D. The stomach may be so greatly dilated as to be alone visible on opening the body, but after it has been removed and emptied it shrinks back to its natural size, leaving only slight lacerations of its coats to indicate its former extreme distension. E. The pain and distress can be entirely removed, and the patient's life may be saved, by the employment of the stomach-pump. The patients whose cases are given in the paper were a youth, about eighteen years old; a man, æt. 30; a woman, æt. 48; and a man, æt. 26. The duration of illness in the four cases respectively was 15, 11, 11, and 10 days.

F. R. Schultze ("Ueber die Bildung brennbarer Gase im Magen," 'Berl. Klin. Woch.,' 1874, 317) founds his paper on several cases, occurring under Friedreich's observation in 1865 and later years, of dilatation of the stomach due to pyloric contraction, and accompanied by the giving off, by the mouth, of inflammable gases. His analysis agrees with that of Popoff in the presence of carbonic acid ($CO_2$) and hydrogen in almost equal proportions, due, probably, to butyric acid fermentation in the stomach. In another paper (ib., 336) he gives a case, occurring also among Friedreich's patients in the summer of 1874, in which, though no inflammable gas was found to be eructated during life, it did escape from punctures, post mortem, in the stomach, duodenum, and upper portions of the small intestine; while, on the other hand, the gas set free from the ileum and colon extinguished the light presented to it.

A. Feroci's observations ("Storia di una gastrite terminata per gangrena, seguita da osservazioni intorno al modo occulto di procedere di alcune Malattie," 'Ann. Univ.,' ccxxiii, 449) are based upon the case of a woman, æt. 48, who had suffered for 18 years with pains, of frequent recurrence, in the abdomen, and especially in the epigastrium, accompanied by vomiting and diarrhœa. In the October of 1872 the symptoms increased in severity, and œdema and ascites set in, followed in March of the next year by death. The post-mortem examination showed the stomach bound down by strong adhesions and extensive hypertrophy of its muscular tissue with colloid degeneration (colloid cancer). The writer thinks the hypertrophy was due to the peritoneal adhesions which tied down and hindered the movements of the stomach.

A. Dmietrewski gives ('Centralblt.,' 1874, 515) a minute account of the microscopic and other changes he found in the organs of a man, æt. 36, who died of leuchæmia. In addition to hyperplasia of the bone marrow, especially marked in the short and flat bones, and leuchæmic new growths in the lungs, kidneys, and liver, he noticed extensive amyloid infiltration in the spleen, liver, kidneys, intestines, and in the mucous membrane of the stomach. He thinks the amyloid degeneration occurring in the latter is extremely rare, and is able to refer to only one other recorded instance (W. Fox, 'Med.-Chir. Trans.,' xli, 388).

Strauss, 'Ueber Magenerweiterung,' Berlin, 1873, pp. 31. Wilks, "Dilatation of Stomach, Kussmaul's Treatment, Death, Clinical Remarks" (man, æt. 63, thickening of pyloric walls with stricture), 'Lancet,' 1874, i, 764. "A case of Cicatrix of the Pyloric End of the Stomach, causing death" (woman, æt. 63), 'Brit. Med. Journ.,' 1874, ii, 366. Schliep, "On the Therapeutics of the Stomach-pump in Chronic Diseases of the Stomach" (abstracted in last 'Report,' p. 154), 'Trans. Clin. Soc.,' vi, 41. Biedert, "Eine vereinfachte Methode, den Magen auszuspülen, nebst einer bezüglichen casuistischen Mittheilung" (description of apparatus), 'Berl. Klin. Woch.,' 1873, 198. Leube, "Ueber eine neue Art von Fleischsolution als Nahrungs- und Heilmittel bei Erkrankungen des Magens," ib., 192. Id., "Ueber die Therapie der Magenkrankheiten," 'Volkmann's Vorträge,' ser. iii, No. 62. Leven, "Physiologie et Pathologie de l'Estomac, Dyspepsie," 'Gaz. des Hôp.,' 1874, 235. Revillout, "Les Affections de l'Estomac et leur diagnostif differentiel," ib., 1874, 769. Hattute, "Ulcère tuberculeux de l'Estomac, tuberculisation abdominale" (man, æt. 47, autopsy), ib., 859. Revillout, "Ulcère simple de l'Estomac," ib., 609. Vandenberg, "Vaste Ulcère de l'Estomac, marche insolite de l'affection, difficulté du diagnostic, hydropsie généralisée, œdéme de la glotte, mort, autopsie," 'Presse Méd. Belge,' 1874, 81. Campbell, "Rupture of Healing Ulcer of the Stomach" (girl, æt. 17, opening in

anterior surface three inches from pylorus), 'Brit. Med. Journ.,' 1874, i, 272. C. T. Williams, "Case of Ulcer of the Stomach, treated principally by nutritive injections" (woman, æt. 30), 'Med. Times and Gaz.,' 1874, ii, 657. Perewerseff, "Recherches sur l'origine et la propagation du Carcinome épithéliale de l'Estomac," 'Robin's Jour. de l'Anat.,' 1874, 337. "Cancer de l'Estomac" (review), 'Gaz. des Hôp.,' 1874, 49. Huart, "Cancer de l'Estomac, atrophie du cœur, hémorrhagie du foie" (woman, æt. 31), 'Presse Méd. Belge,' 1874, 49. Friedreich, "Ein Fall von Magenkrebs" (man, æt. 54, treated with condurango, recovery), 'Berl. Klin. Woch.,' 1874, i. Legg, "Sarcoma of the Stomach, Fibro-cystic Disease of the Ovaries" (girl, æt. 17), 'Path. Soc. Trans.,' xxv, 121. Id., "Cancerous Ulcer of the Stomach, 'Suppurative' Thrombosis of the Portal Vein" (man, æt. 63), ib., 123. Ashby, "Sudden Death, Gastritis" (man), 'Lancet,' 1874, ii, 156. More, "On the Sarcina Ventriculi," ib., 1873, i, 7. Luton, "Vomitifs exceptionnels en cas d'Indigestion," 'Gaz. Heb.,' 1873, 655. Tuckwell, "On Vomiting of Habit," 'Brit. Med. Journ.,' 1873, i, 310. Ebstein, "Experimentelle Untersuchungen über das Zustandekommen von Blutextravasation in der Magenschleimhaute," 'Arch. f. Exp. Path.,' 1874, 183.

### *Affections of the Intestines.*

A. Burkart ('Berl. Klin. Woch.,' 1873) gives a case of strangulated diaphragmatic hernia in a man, æt. 25. Percussion during life gave tympanitic resonance from the fifth left rib downwards to the xiphoid cartilage. After death the left lung was found covered by the stomach, which was distended and had carried with it through the left and posterior portion of the centrum tendineum, the large omentum, and almost all the transverse colon. The lung was in a state of atelectasis. The writer refers to other cases of the same kind, and thinks that the diagnosis, certainly difficult, may be made by a careful physical examination of the chest and abdomen. In traumatic cases the signs may be mistaken for those of pneumothorax.

Riekohl publishes (ib., 1874, 249) two cases of children, aged about 6 months, in whom he found the so-called Meckel's diverticulum given off from the ileum, near the cæcum. Its calibre was less than that of the intestine; in one case it hung free in the abdominal cavity, in the other it was attached to the mesentery by a fibrous cord. Before death both children, as also a third of the same family, whose body was not examined, had had vomiting and irregular stools. There were no signs of intestinal inflammation.

V. Biaggi records ("Sable intestinal," 'Press Méd. Belge,' 1874, 153) the case of a woman, æt. 35, suffering from dyspepsia, who for several months passed with her stools soft and friable concretions of the appearance of chalk, and composed of a mixture of inorganic salts, organised débris, and numerous small calculous masses of singular forms and aspect.

A. Laboulbène writes on the same subject ('Arch. Gén.,' xxii, 641).

H. B. Sands ('New York Med. Jour.,' xx, 195) exhibited to the New York Pathological Society four small fæcal concretions, discharged from an abscess following peritonitis, and due to ulceration of the vermiform appendix, in a man, æt. 41.

Wagner, "Die Intestinalmykose und ihre Beziehung zum Milzbrand," 'Arch. de Heilk.,' xv, 1. Stich, "Duodenalgeschwur mit Durchbrurch in die Aorta abdominalis" (in old woman, suffering from catarrh, who died suddenly after vomiting blood), 'Deut. Arch.,' xiii, 191. McCarthy, "Perforating Ulcers of the Duodenum after Burn" (girl, æt. 7), 'Path. Soc. Trans.,' xxv, 120. Holland, "Rupture of the

Jejunum from a Fall, in a girl eleven years of age," 'Brit. Med. Journ.,' 1873, i, 703. Murchison, "Abscess connected with Intestine, Pyæmia, Operation, Death" (man, æt. 26, no autopsy), 'Lancet,' 1873, ii, 555. Allan, "Case of Acute Typhlitis" (woman, æt. 34, recovery), 'Lancet,' 1873, i, 770. Béhier, "Leçon sur un cas de Pérityphlite" (man, æt. 54, death in eleven days, autopsy), 'Gaz. des Hôp.,' 1874, 954. "Perityphlitis," 'New York Med. Journ.,' xviii, 240. Nelson, "On Constipation simulating Diarrhœa," 'Med. Times and Gaz.,' 1873, ii, 199. Strong, "Case of Habitual Constipation, eight months and sixteen days between fecal evacuations," 'Amer. Journ. Med. Sci.,' lxviii, 440. Thorowgood, "Two cases illustrating the Curative Action of Ipecacuanha in Diarrhœa," 'Clin. Soc. Trans.,' vi, 171. Farquharson, "On the use of Ipecacuanha in Infantile Diarrhœa," 'Brit. Med. Journ.,' 1874, i, 169. Dujardin-Beaumetz and Hardy, "De la Farine d'Avoine et de son rôle dans l'alimentation du jeune age," 'Union. Méd.,' xv, 664. Moxon, "Cancer (Lymphosarcoma) of the Small Intestines," 'Path. Soc. Trans.,' xxiv, 101. Coupland, "Cancer of Duodenum, leading to obliteration of Gall-bladder and Cystic Duct and partial occlusion of Hepatic and Common Bile-ducts, fatal jaundice," ib., 103. Goodhart, "Rectal Polypus," ib., 114. Zimmermann, "Ueber 2 Fälle von necrosirender Enteritis bei Morbus maculosus Werlhofii," 'Arch. d. Heilk,' xv, 167. v. Basch, "Die Hemmung der Darmbewegungen durch den Nervus splanchnicus," 'Wien. Med. Jahrb.,' 1874, 45. Charon and De St. Moulin, "Absence complète de Rectum et d' siliaque avec conservation de l'Anus, mort, autopsie, reflexions" (boy, æt. 5 days), 'Presse Méd. Belge,' 1874, 90.

### *Intestinal Obstruction.*

O. Leichtenstern writes an extremely long and valuable paper ('Vierteljahrsschr. f. Prakt. Heilk.,' 1873, iii, 189; iv, 59; 1874, i, 17) on intestinal invagination, based on records of 593 cases. He gives tables of the results noticed, and enters at length into various points connected with the affection. He finds that intussusception is more frequent in males than females, most frequent in the first year of life (in 131 of the cases), almost stationary between six and forty years, again increasing, especially after the age of fifty. It is most frequent between the fourth and sixth months of life. Its most common form is ileo-cæcal, especially during the first year of life. Intussusception of the small intestines, save during that period, is more common in adult life. Ascending or retrogressive intussusception, whether of the large or small intestines, is rare. Cases of multiple invagination, double, or even triple, forming five or seven layers, have been recorded, but are very rare; with one exception they were cases of primary ileo-cæcal intussusception, never of the small intestines. Lateral or partial intussusceptions, consisting originally of pouch-like invaginations of the intestinal wall, produced by polypi, are also very rare. He describes the two modes in which internal hernia and intussusception occur, either through a fold of the mesentery or a loop of the jejunum or ileum, and discusses at greater length the etiology, symptoms, and diagnosis of the affection. The third and last part of the paper is taken up with therapeutical methods, with special reference to the disentangling of the intussuscepted portion.

Wagstaffe, "Intestinal Obstruction, its Causes and Treatment," 'Brit. Med. Journ.,' 1874, i, 587. Id., on same subject, 'St. Thomas's Hosp. Rep.,' iv, 179.

The following papers are arranged on the plan of former years (see two previous 'Reports'):

1. Cases in which the gut is plugged by its contents (it would be

difficult to say that all the following can be accurately referred to this heading):

Gray, "A case of Intestinal Obstruction caused by the Impaction of a Gall-stone" (man, æt. 40), 'Clin. Soc. Trans.,' vi, 193. Hill, "Intestinal Obstruction, prolonged Stercoraceous Vomiting, Succussion, Recovery" (man, æt. 20, loaded bowels), 'Brit. Med. Journ.,' 1874, i, 48. Martyn, "Case of Intestinal Obstruction in Colic, Evacuation of Flatus by Puncture, Recovery" (man, æt. 60), ib. ib., 173. Allan, "Case presenting symptoms of Intestinal Obstruction, Administration of Opium" (man, æt. 76, death, no autopsy), ib. ib., 708. Macrae, "Case of Intestinal Obstruction of eighteen days' duration successfully treated by Belladonna," 'Lancet,' 1873, i, 128. Thorowgood, "Fatal case of Intestinal Obstruction" (man, æt. 60, no stricture), ib., ib., 171. Brewer, "Intestinal Obstruction of eleven days' duration, Stercoraceous Vomiting, Recovery" (man, æt. 49), ib., 1874, ii, 726. Metz, "Heilung einer hartnäckigen Darmverschliessung durch Hydrargyrum depuratum," 'Berl. Klin. Woch.,' 1873, 115. Kirschstein, "Zur Wirkung des Hydrargyrum depuratnm," ib., 437.
J. Taylor, "A case of Intestinal Obstruction, Treatment by Colotomy" (with success, in female, æt. 60), 'Lancet,' 1874, ii, 341. Foote, "Intestinal Obstruction, left Lumbar Colotomy" (man, æt. 26, recovery), ib. ib., 415. Whitale, "Gastrotomy for Intestinal Occlusion," 'New York Med. Journ.,' xviii, 113.

2. Intussusceptions or invaginations:

Pernet, "Intussusception intestinale dans le cours d'une Fièvre typhoide, expulsion de la partie étranglée, guérison" (boy, æt. 2), 'Gaz. des Hôp.,' 1873, 228. Bouchaud, "Invagination du Gros Intestin, chute du cæcum, gangrène, guérison" (woman, æt. 40), ib., 1874, 834. Leichtenstern, "Darminvagination von 11 Monatlichen Dauer" man, æt. 28, autopsy), 'Deut Arch.,' xii, 381. Cullingworth, "Case of Intussusception in an Infant, ending fatally" (boy, æt. 25 weeks, invagination of ileum for 1½ inches), 'Lancet,' 1874, ii, 242. Peacock, "Intussusception of upper part of Small Intestine" (female, æt. 19, upper part of jejunum), 'Path. Soc. Trans.,' xxiv, 108. Heaton, "A case of Ileo-colic Intussusception," 'Brit. Med. Journ.,' 1873, ii, 215.

3 and 4. Strictures and contractions:

Lowe, "Stricture of the Rectum caused by injection of boiling water and turpentine, Forcible Dilatation, Cure" (man, æt. 40), 'Lancet,' 1873, i, 341. Glynn, "Two cases of Intestinal Obstruction, Death" (1, boy, æt. 17, constriction by band of "fibrin;" 2, man, æt. 62, constriction by coil of small intestine), ib., 1874, i, 692. Cockle, "Cancer of the Descending Colon, Intestinal Occlusion, Peritonitis, Death" (woman, æt. 69, autopsy), ib. ib., 728. Glynn, "Intestinal Obstruction, Death" (woman, æt. 32, ileum constricted by band), ib. ib., 905. Southey, "Carcinomatous Stricture of the middle portion of the Descending Colon, Incomplete Obstruction, Perforation, Peritonitis, Death" (man, æt. 46), ib. ib., ii, 194. Wagstaffe, "Intestinal Obstruction from large Tumour of the Pelvis, Enterotomy, Relief" (woman, æt. 30), 'Med. Times and Gaz.,' 1874, i, 475. Howse, "Two cases of Internal Intestinal Obstruction treated by Operation" (men, æt. 56 and 33, constriction; death, and autopsy of first case, recovery of second), 'Guy's Hosp. Rep.,' xix, 489. Hadra, "Case of Obstruction of the Bowels from Undeveloped Large Intestine in a child recently born," 'New York Med. Journ.,' xix, 179.

5 and 6. Volvuli and strangulation:

Coats, "Strangulation of the Intestine by Twisting of the Mesentery" (description of preparation), 'Glasg. Journ.,' N. S., vi, 425. Callender, "A case of Intestinal Obstruction" (man, æt. 46, coil of small intestine twisted round portion of mesentery), 'Clin. Soc. Trans.,' vi, 189. Bryant, "Case of Intestinal Obstruction" (by omental bands, in woman, æt. 45), 'Lancet,' 1873, ii, 773. Platt, "Case of Intestinal Obstruction, with Hernia through the Peritoneum" (girl, æt. 9), ib., i, 42.

V. Cornil ("Note sur l'Anatomie pathologique des Ulcérations intestinales dans la Dysentérie," 'Arch. de Phys.,' v, 511) thinks that though the pathological changes as seen by the naked eye in dysentery have frequently been described, the minute histology of the affection has been neglected. After giving shortly the appearances found in a case of chronic dysentery with ulceration, he describes, with woodcuts, sections of the hardened intestine, comprising—1, the mucous membrane forming the borders of the ulcers; 2, the ulcers themselves; and 3, certain cavities filled with mucus. 1. The ulcerations were separated from one another by portions of swollen and congested mucous membrane, in which the glands of Lieberkühn were large and lengthened, vessels distended with blood running through the connective tissues between them. The muscular layer beneath was normal. 2. Sections of the ulcers showed only vestiges of the tubular glands, which in places had entirely disappeared; those which remained were separated by connective tissue infiltrated with white cells. 3. In the ulcerated portions were follicular depressions, losses of tissue visible to the naked eye, and filled with mucus, elliptical or spherical in shape. Their orifice was circular, regular, and often narrow; their cavity simple or multiple; in the latter case the different cavities were partitioned off by tracts of fibrous tissue. The connective tissue in the immediate neighbourhood was filled with white or pus-cells. Cornil believes these cavities are the result of the destruction of the closed follicles. The ulcerated portions of mucous membrane showed marked pigmentation, as also did the enlarged spleen and the liver. He mentions a second case, in which there were no true ulcerations, as shown by microscopical examination, though with the naked eye it was possible to suppose their existence. In conclusion he remarks that in acute or subacute dysentery there occur puriform infiltrations of the submucous tissue followed by destruction, while in chronic dysentery the predominating lesion is essentially a production of fibrous tissue and thickening of the connective tissue of the large intestine.

M. Kelsch ('Contributions a l'Anatomie pathologique de la Dysentérie chronique,' ib., 406) concludes from his observations that—1. A chronic dysentery is distinct from the chronic dysenteric diarrhœa of hot countries; the former is always acute in its commencement, the latter is throughout a chronic inflammation of the colon. 2. The histological lesions found in the chronic diarrhœa and dysentery of hot climates are identical with those found in cases occurring in Paris. 3. The progress of acute dysentery is the same in all climates, and does not differ at bottom from that of chronic diarrhœa and dysentery. He gives full accounts of the lesions found in four cases—two of marines who had contracted chronic diarrhœa in Cochin China; one of a soldier who died of chronic dysentery, with abscess of the liver, at Constantinople; and a fourth, a phthisical patient, carried off by sub-acute dysenteric diarrhœa. These lesions agree with the changes described by Cornil. Kelsch attempts at the end of his paper to prove that the alteration found in acute dysentery is identical in nature with, and

differs only in intensity from, that occurring in chronic dysentery and diarrhœa; and in a second paper ("Contribution à l'Anatomie pathologique de la Dysentérie Aiguë," ib., 687) he thinks that this opinion is confirmed by the autopsy of a soldier who died on the twenty-third day of acute dysentery. The mucous membrane in this case was almost everywhere destroyed. What remained showed as dark red islets, only partially adherent to the subjacent tissue. These islets consisted of Lieberkühn's tubes, irregularly disposed, atrophied, dilated, and pressed upon by the intermediate fibro-vascular tissue. The network of blood-vessels between the tubes was immensely developed, and all its branches, large and small, gorged with red and white blood-cells. Alongside of the blood-vessels were large collections of pus-cells. Kelsch found no tracé of the closed follicles, and concludes that they suppurate together with the layer of tissue in which they lie. He holds that the morbid process commences in this layer (vascular zone of Döllinger), and that the changes in the mucous membrane (epithelium and crypts of Lieberkühn) are secondary, and he thus easily accounts for the desquamation of the mucous membrane, which is the fundamental anatomical characteristic of acute dysentery. The paper concludes with some remarks on the condition of the ileum in acute and chronic dysentery, the nephritis said to occur in the disease, and on the stools. Both papers are accompanied by excellent illustrations.

B. Wenzel ("Zur Behandlung der Ruhr," 'Berl. Klin.-Woch.,' 1873, 575) uses injections of ice-water in all recent and acute cases of dysentery, whether their character be slight or severe; in bad cases he employs them every two hours. He seldom finds it necessary to give opium. In old and recurring cases of chronic dysentery this plan of treatment fails.

Amelung ('Zur Behandlung der Dysenterie,' ib., 125) obtains great success from carbolic acid, which he continues every two hours till the bloody and slimy character of the stools disappears, and they become more natural.

Cersoy, "Considérations pratiques sur la Dysentérie aiguë," 'Bull. Gén. de Thérap.,' t. 84, p. 118. Quinquaud, "Des manifestations rhumatoides de la Dysentérie," 'Gaz. des Hôp.,' 1874, 419. Cameron, "Tropical Dysentery," 'Lancet,' 1874, i, 7. Donnet, "Notes and Practical Observations upon the Remittent Fever and Dysentery of the Gold Coast," ib. ib., 227. Robert, "Note sur l'Ailanthe glanduleuse (Ailanthus glandulosa) comme moyen de traitement de la Dysentérie," 'Arch. de Méd. Nav.,' xxi, 107. Ward, "On the Treatment of Chronic Dysentery," 'Med. Times and Gaz.,' 1873, i, 194. Mead, "Of the Use of Chlorate of Potash and Glycerine Injections for the Ulcerations in Chronic Dysentery," 'New York Med. Journ.,' xviii, 265. Rapmund, "Einige Fälle von Gelenkentzündung in Folge von Ruhr," 'Deut. Klin.,' 1874, 132.

### *Affections of the Liver.*

#### *(a) Parenchymatous hepatitis; acute atrophy.*

Zander ('Virch. Archiv,' lix, 153) found numerous bacteria mingled with the usual débris of hepatic cells, in a case of acute yellow atrophy; the fact had already been observed by Waldeyer.

Vanden Bergh, "Hépatite suraiguë, ou Atrophia aiguë du foie, probablement due à un empoisonnement par le Phosphore" (girl, æt. 18), 'Presse Méd. Belge,' 1874, 129. Ogston, "Acute Yellow Atrophy of the Liver, Abortion, and Post-mortem

Examination of Mother and Fœtus," 'Brit. Med. Journ.,' 1873, i, 57. Head, "Case of Acute Yellow Atrophy of the Liver, Death, Necropsy" (woman, æt. 28), ib., 1874, ii, 107. Stewart, "Case of Waxy and Syphilitic Disease of the Liver, with Ascites, Recovery after frequent tapping" (woman, æt. 28), ib., 1874, ii, 121. Dupré, 'Ueber Icterus gravis, acute gelbe Leberatrophie bei Schwangeren und Wöchnerinnen,' Strassburg, 1873, pp. 35. Morand, "Ictère grave, mort le troisième jour de l'entrée à l'hôpital après dix-neuf heures de convulsions tétaniques, atrophie graisseuse du foie, dégénérescence graisseuse des reins" (man. æt. 22), 'Gaz. des Hôp.,' 1873, 154.

### (b) *Suppurative hepatitis; abscess.*

Mayet, "Contribution à l'étude des Abcès du Foie," 'Gaz. Hebd.,' 1873, 621. Colin, "Abcès du Foie ouvert dans la veine cave," ib., 529. Sistach, "Note sur un Abcès du Foie opéré et guéri par la ponction suivie d'injections iodées," 'Gaz. Méd.,' 1873, 72. Axon, "Abcès du Foie évacué par les bronches, guérison rapide" (man, æt. 25), 'Gaz. des Hôp.,' 1874, 738. Michel, "Abcès du Foie ouvert dans les bronches" (man, æt. 50, autopsy), "Presse Méd. Belge,' 1874, 10. Stewart, "A case of Dilatation of the Bile-ducts, followed by Abscess of the Liver" (man, æt. 24), 'Edin. Journ.,' xviii, 627. Ward, "Case of Abscess of Liver opening into Lung, and subsequently opened externally, with successful result" (sailor, æt. 34), 'Lancet,' 1873, i, 126. Maclean, "A case of Abscess of the Liver, recovery after the abstraction, by Dieulafoy's aspirator, of 106 ounces of pus, with remarks on the effects of the direct abstraction of blood from the liver by the same instrument" (in soldier, æt. 41, preceded by dysentery), ib. ib., ii, 39. Ralfe, "Abscess of Liver treated by Aspiration, subsequently to free incision and insertion of drainage-tube, death from pleurisy and exhaustion" (man, æt. 38), 'Med. Times and Gaz.,' 1874, ii, 686. Eames, "Hepatic Abscess (contracted on the Gold Coast) opening into Pleura, Destruction of Lung, Death" (man, æt. 25, autopsy), 'Brit. Med. Journ.,' 1874, i, 709. Maclean, "The Diagnostic Value of Incontrollable Vomiting in certain forms of Hepatic Abscess" (with case and autopsy), ib. ib., ii, 138. Fayrer, "On the Diagnostic Value of Vomiting and Pain in Hepatic Suppuration," ib. ib., ii, 401. Moxon, "Large Single Abscess of the Liver secondary to Ulcer of Intestine" (man, æt. 23), 'Path. Soc. Trans.,' xxiv, 116. King, "Abscess of the Liver without Ulceration of the Intestines," ib., xxv, 140.

### (c) *Interstitial hepatitis; cirrhosis.*

G. Hayem writes ('Arch. de Phys.,' 1874, N. S., i, 126) on chronic interstitial hepatitis with hypertrophy, insisting that in some cases, certainly rare, we have to deal, not with a transitory period of hypertrophy, but with a special affection. Among other facts he has noticed a dilatation of the capillaries in a large number of the liver-lobules. The history of several cases, with autopsies and plates, is given.

V. Cornil ("Note pour servir a l'histoire anatomique de la Cirrhose hépatique," ib., 265) has also found the same dilatation of the capillaries in connection with dilated interlobular vessels, in this affection, to such an extent sometimes as to form a true cavernous tissue. The capillary walls were greatly thickened, the liver-cells atrophied. (See also 'Gaz. Méd.,' 1873, No. 49, and 'Bull. de l'Acad. de Méd.,' 1873, No. 44.)

J. W. Legg, writing ('St. Barth. Hosp. Rep.,' viii, 74) on the pathology of cirrhosis, states that the nuclei of the connective tissue intervening between the islets of liver tissue are (1) irregular, (2) linear, and (3) clustered together. The cells are one fourth of the natural size, oblong, spindle-shaped, oval, or ovate. He believes that the liver-cells themselves take part in the general formation of con-

nective tissue, and, finding the nuclei increased in number, considers that they may be the remains of liver-cells.

J. McCrea urges ('Dubl. Journ.,' lvi, 109) the importance of early tapping in hepatic ascites, and gives two cases, of a child, æt. 3, and a man, æt. 35, which have left the impression on his mind that tapping is not merely a palliative, but even a radical mode of treatment.

Wilmart, "Cirrhose du Foie" (man, æt. 59, diagnosed to be "stenosis of the portal vein"), 'Presse Méd. Belge,' 1874, 9. Carpentier, "Hépato-splénite chronique, fièvre intermittente, développement considérable du foie et de la rate, ictère, ascite" (man, æt. 35), ib., 145. H. Thompson, "Case of Cirrhosis and Carcinoma of the Liver, with Heart Disease and Ascites" (man, æt. 60, aortic disease), 'Med. Times and Gaz.,' 1874, i, 556.

### (*d*) *Carcinoma.*

Fourstie, "Carcinome primitif du Foie, formant une masse unique, recouverte uniformément par le paryenchyme hépatique" (man, æt. 54), 'Presse Méd. Belge,' 1874, 111. Moxon, "Case of Acute Cancer of the Liver" (man, æt. 25), 'Med. Times and Gaz.,' 1873, i, 621. H. Thompson, "Clinical Lecture on a case of Carcinoma of the Liver and Left Supra-renal Capsule, with Ascites" (man, æt. 49), ib. 1874, i, 31. See also cases in 'Path. Soc. Trans.,' xxiv, 120, 123, 134; xxv, 166.

### (*e*) *Echinococci.*

Moutard-Martin, "Kyste hydatique du Foie ouvert dans la cavité pleurale droite, pyo-pneumothorax et vomique abondantes, opération d'empyème, guérison," 'Bull. de l'Acad. de Méd.,' 1873, 1546. Boinet, "Kyste hydatique du Foie guéri par la ponction à l'aide d'un gros trocart, l'évacuation immédiate des poches hydatiques, par l'aspiration et les lavages," 'Gaz. des Hôp.,' 1873, 149. Laségue, "Kystes hydatiques du Foie, suppuration de la cavité kystique, guérison" (woman, æt. 30), 'Arch. Gén.,' xxii, 718. Prougeansky, 'Ueber die multiloculäre ulcerirende Echinococcus-Geschwulst in der Leber,' Zurich, 1873, pp. 68. Kehlberg, 'Echinococcus hepatis et lienis,' Berlin, 1873, pp. 31. Leube, "Echinococcus hepatis, Behandlung mit Galvano-punctur, Suppuration des Blaseninhalts in Folge der Operation, hereditäre Pleuritis, compression der Lunge durch Pleuraexsudat und Volumszunahme der vereiternden Echinococcusblase, Punction mit Aspiration von 400 gm. des eitrigen Inhalts, auffallende Besserung" (man, æt. 40), 'Monatsberichte der Med. Klin. zu Jena,' 1874, No. 1. Handfield-Jones, "Two cases of Hydatid Tumour in the Abdomen; Case 1.—Two abdominal tumours, disappearance of that in the liver suppuration of that in or near the spleen, operations, removal of cyst, recovery" (boy, æt. 10). "Case 2.—Hydatid tumour in liver, paracentesis and electrolysis" (girl, æt. 14), 'Med. Times and Gaz.,' 1874, i, 421. Russell, "Two large Hydatid Tumours of the Liver, communicating the one with the right pleural cavity, the other with the bronchial tubes of the left lung, and also with the stomach" (man, æt. 36), ib., 1873, i, 439. Marshall, "Case of Hydatids of Liver, discharging by fistulous openings" (girl, recovery), 'Brit. Med. Journ.,' 1873, ii, 376. Fuller, "Multiple Suppurating Hydatid Cysts in the Liver, tapped in three places, recovery, clinical remarks" (man, æt. 47), ib. ib., 461. Bradbury, "Six cases of Hydatids of the Liver treated by Puncture," ib., 1874, ii, 494, &c. Heaton, "Hydatid of the Liver treated successfully by Aspiration" (woman, æt. 20), ib., ib., 557. Philipson, "Case of Hydatid Disease of the Liver treated by Puncture" (boy, æt. 14), ib. ib., 557. Ramskill, "Suppurating Hydatid of the Liver, Tapping, Discharge of Bile, Cure" (man, æt. 35), ib. ib., 619. Latham, "Clinical Lecture on a case of Suppurating Hydatid Cyst of the Liver communicating with the Left Lung" (woman, æt. 34, autopsy), 'Lancet,' 1873, ii, 221. Whitmore, "Case of Suppurating Hydatid Cyst of the Liver, Puncture, Recovery" (man, æt. 61), ib., 1873, i, 11. Knaggs, "Case of Hydatids of the Liver, Operation, Relief, Observations" (man, æt. 40), 'Dubl. Journ.,' lvi, 31. Cayley and Silver, "Hydatid Cyst of the Liver associated with Cirrhosis and Cancer of the Stomach and Pancreas" (man, æt. 49), 'Path. Soc. Trans.,' xxv, 129. Greenhow, "Large Hydatid Cyst of the Liver perforating the Diaphragm and occupying the greater part

of the Right Pleural Sac" (woman, æt. 36), ib., 130. Legg, "Hydatids of the Liver, Omentum, and Recto-vesical Pouch, Compression of the Hepatic Duct, Jaundice, Xanthelasma Multiplex" (man, æt. 35), ib., 155. Duffin, "On the Value of Puncture in Hydatid Tumour of the Liver," 'Clin. Soc. Trans.,' vi, 23.

### (*f.*) *Affections of the Bile-ducts, &c.*

J. W. Legg publishes ('St. Barthol. Hosp. Rep.,' ix, 161) the results of several observations upon the changes which occur in the liver after ligature of the bile-ducts in cats. He describes at length the mode of operation and the various symptoms noticed while the animals lived. Microscopic examination of the organ showed increase of the connective tissue, with the presence in it of lymphoid corpuscles, and atrophy and fatty infiltration of the liver-cells. The morbid state which most closely imitates ligature of the ducts is their congenital obstruction outside the liver; and here the same change of events assumed by the writer to take place in the artificial seems to occur also in the more natural operation —"the change of the bile-ducts into a fibrous cord influences all the connective tissue in the portal canals, and an overgrowth takes place." At the same time it is carefully pointed out that the theory of acute yellow atrophy, according to which it was supposed to be due to obstruction of the bile-ducts, receives no support from these experiments.

Moxon, "Simple Stricture of the Hepatic Duct, causing chronic jaundice and xanthelasma," 'Path. Soc. Trans.,' xxiv, 129. Cayley and Silver, "Obstructed Common Bile-duct, giving rise to jaundice and enlargement of the liver," ib., xxv, 127. Legg, "Gall-stone in the Common Duct, dilatation of all the bile-ducts behind it, abscess in the left lobe of the liver, finding its way into the pericardium and right pleura," ib., 133. Jackson, "Case of Occlusion of Gall-bladder" (237 stones, woman, æt. 29, autopsy), 'Brit. Med. Journ.,' 1874, ii, 71. Dujardin-Beaumetz, "Étude sur le Spasme des Voies biliaires, à propos du traitement de la Colique hépatique," 'Bull. Gén. de Thérap.,' lxxxv, p. 385. Phillippe, "Observation de Colique hépatique, avec obstruction compléte des voies biliaires, due à présence de calculs, guérison," 'Union Méd.,' xv, 276. Hertz, "Ein Fall von Gallenfistel in den Bauchdecken, bedingt durch Durchbruch von Gallensteinen," 'Berl. Klin. Woch.,' 1873, 161. Westphalen, "Ein Fall von Gallenfistel," 'Deut. Arch.,' xi, 588.

### (*g.*) *Malformation, &c.; Jaundice.*

F. Riegel ('Deut. Arch.,' xi, 113) gives the following:—A woman, æt. 49, had during life presented two tumours on the right side of the abdomen, separated from one another and from the liver by a clear tympanitic sound on percussion. The autopsy showed that a large portion was torn away from the liver, the thickness of which was much diminished, and was attached to it by a long slender pedicle, over which lay a coil of intestine. Another coil passed over the anterior surface of this portion of liver, and had thus led to the diagnosis of two separate tumours, which had been looked upon during life as fæcal accumulations. The liver itself, which was adherent to the diaphragm, and the separated portion showed hyperplasia and hypertrophy of the liver-cells, and consequent increase in size of the acini. There was on the whole the appearance of a syphilitic gummous hepatitis, but except a few cicatrices on the posterior commissure of the genitals there was no trace of syphilis.

Müller ('Zur Diagnose der Wanderleber,' ib., xiv, 146) records the

case of a woman, æt. 59, in whom during life the liver dulness was entirely absent. She had also ovarian tumour and ascites. After repeated paracentesis she died, and the liver was found to be reduced to half its size and dragged upwards and backwards. A tumour which had been supposed to be the liver was found to consist of the greatly thickened omentum.

Leopold ('Arch. f. Gynäkol.,' 1874, vii) gives a similar case, said to be the seventh recorded of "descensus hepatis." This occurred also in a woman, æt. 54, in whom the thinness of the abdominal walls helped to make the diagnosis clear.

"Report, &c., of Autopsy of the Siamese Twins" (with woodcuts), 'Brit. Med. Journ.,' 1874, i, 359. Marshall, "Rupture of the Liver, Plugging of the Pulmonary Artery with Hepatic Substance" (piece of liver weighing a drachm! Truly "unique."—*Rep.*), 'Lancet,' 1874, i, 197. Moxon, "Clinical Remarks on Xanthopsia in Jaundice, and on the Distribution of the Bile-pigment in Jaundice," ib., 1873, i, 130. Legg, "The Liver in Jaundice," ib., 1874, i, 607. Ward, "On Carlsbad and its Mineral Springs in relation to Diseases of the Liver," ib., 1873, ii, 4. Murchison, "On Functional Derangements of the Liver," 'Brit. Med. Journ.,' 1874, i, 404. Gerhardt, "Heilung des Icterus katarrhalis durch Faradisation der Gallen-blase," 'Berl. Klin. Woch.,' 1873, 313. Immermann, "Ein Fall von hämatogenem Icterus," 'Deut. Arch.,' xii, 502. Poncet, "L'Ictère hémaphéique," 'Lyon Méd.,' xv, 106. Perkowski, "Ictère du Nouveau-né, hémorrhagies incoercibles," 'Gaz. des Hôp.,' 1874, 850. Church, "Icterus neonatorum" (of 17 children two only lived beyond the ninth day, all that lived 48 hours had jaundice), 'New York Med. Journ.,' xviii, 199. Dalton, "On the Spectrum of Bile," ib., xix, 579. Rossbach, "Ein Fall von Pylethrombose mit puriform Zerfall der Thrombus" (man, æt. 28, autopsy), 'Berl. Klin. Woch.,' 1873, 244.

### *Affections of the Spleen.*

W. Mosler ('Virch. Arch.,' lvii, 1) writes on the action of cold water on the spleen. He gives a sketch of the literature on the subject, commencing with Currie ('Medical Reports on the Effects of Water, Cold and Warm,' London, 1805), and adds the results of his own experiments on animals and the history of five clinical cases. He concludes that applications of cold water to the abdomen cause a marked decrease in the size of the spleen, not only in its normal condition, but also in chronic and acute enlargements of the organ, whether recent or of some standing. He points out that in addition to having the same advantages as quinine in this manner, it has disadvantages in chilling the body, &c. He recommends that the use of cold water, whether as baths, ice bladders, or the cold douche, should be combined with quinine, the combination of the two having a better effect than the use of either separately. In chronic cases of enlargement he uses chinoidine, as cheaper.

C. C. Ritchie records ('Lancet,' 1873, ii, 6) the case of a boy, æt. 2½, of rickety habit, in the left side of whose abdomen a swelling had been noticed at the age of fourteen months. On examination a solid tumour, somewhat globular in shape, uniform on the surface, and with a diameter of 5½ by 4½ inches, could be distinctly felt occupying the left hypochondriac, umbilical, and left iliac regions. It did not move with respiration or palpation, but during deep inspiration a distinctly rounded edge could be made out. The urine contained albumen and blood-casts. Taken in connection with the hæmaturia, the tu-

mour was supposed to be the kidney enlarged by malignant disease; but on post-mortem examination it turned out to be the greatly enlarged spleen, firm and dense, and of a deep purple-red colour. Microscopical examination showed enlargement of the Malpighian corpuscles, irregular swelling of the trabeculæ, and increase of the cellular elements, which were densely packed. The liver was also large, with increase of its fibrous tissue; the other organs were healthy. In proof of the rachitic origin of the splenic tumour, the writer refers to the researches of Dickinson ('Med.-Chir. Trans.,' lii, 359).

W. Alexander gives (ib. ib., 264) a case of acute inflammation of the spleen in an intemperate man, æt. 25. He had complained a week before death of slight pain and tenderness over the left hypochondriac region, slight hæmoptysis, and general malaise, with a temperature of 100·5° F. Symptoms of acute peritonitis set in, to which the patient succumbed. Post-mortem, in addition to general peritonitis, the spleen was found to be adherent to the diaphragm, covered by false membranes and bathed in pus. On attempting to lift it out, the capsule was ruptured; the splenic substance was softened, studded with minute abscesses, and its bulk slightly increased. Part of the capsule was adherent to the diaphragm, and at this spot a tolerably large abscess had formed. With the exception of commencing pneumonia of the left lung, the other organs were healthy.

Rosenstein and Sänger ('Berl. Klin. Woch.,' 1873, 229) give the case of a woman, æt. 37, on whom, after repeated puncture of an increasing tumour in the neighbourhood of the spleen, an operation for its removal, in the absence of any certain diagnosis as to its nature, was performed. Numerous echinococcus-cysts were found after removal, and the case is interesting so far as regards the painfulness of the tumour and the presence of pus, without hooklets, &c., in the fluid evacuated by preceding punctures.

Koeberlé contributes a case exactly similar ('Gaz. Méd. de Strassbourg,' 1873, No. 12) in a woman, æt. 27, who had had a gradually growing tumour for four years.

Martineau ('Union Méd.,' xv, 181) also records a case of suppurating hydatid cyst of the spleen in a woman, æt. 23, which was punctured.

Friedreich, "Der acute Milztumor und seine Beziehungen zu den acuten Infectionskrankheiten," 'Volkmann's Vorträge,' No. 75. Botkin, 'Die Contractilität der Milz und die Beziehung der Infectionsprocesse zur Milz, Leber, den Nieren und dem Herzen,' Berlin, 1874, pp. 79. Fayrer, "On the Malarial Splenic Cachexia of Tropical Climates," 'Med. Times and Gaz.,' 1874, i, 2. Ramskill, "Hypertrophied Spleen and Kidneys, Peritonitis, Death, Necropsy" (boy, æt. 16), 'Brit. Med. Journ.,' 1874, i, 682. Id., "Hypertrophied Spleen, Leucocytosis, Tubercular Disease of the Peritoneum and Pleura" (man, æt. 55, with remarks on another case—malarious?), ib. ib., 514. Fagge, "Case of Progressive Caseous and probably Tubercular Disease of the Lymphatic Glands and Spleen" (woman, æt. 35, autopsy), 'Path. Soc. Trans.,' xxv, 235. O'Connor, "Primary (?) Cancer of the Spleen," ib., xxiv, 222. Pirotais, "Luxation de la Rate" (woman, æt. 35), 'Gaz. des Hôp.,' 1874, 666.

### *Affections of the Pancreas.*

A. Silver showed ('Path. Soc. Trans.,' xxiv, 121) a portion of pancreas which had undergone fatty degeneration, from a man, æt. 32, the

subject of diabetes. He had led an irregular life, and for some time before his death, from phthisis, had been passing oily matter in his stools. The pancreas was greatly diminished in size, and no gland-tissue was present.

J. Curnow (ib., 136) removed the pancreas from a man, æt. 34, who had died from aortic disease. It was greatly atrophied, and its ducts were much dilated and studded with calculi, even in the smaller radicles. It would seem as if the duodenal orifices of the ducts had been closed by catarrhal inflammation, and the retained pancreatic secretion had then inspissated and its less soluble salts crystallized out. In addition, the cystic duct was impervious, and some small gall-stones were present in the smaller branches of the hepatic ducts.

### *Affections of the Peritoneum, &c.*

N. Friedreich writes ('Virch. Arch.,' lviii, 35) on a peculiar form of chronic hæmorrhagic peritonitis and hæmatoma of the diaphragm. He gives two cases, occurring in a woman, æt. 35, and a man, æt. 28. In both there was heart disease (stenosis of the mitral, &c.), and the chronic inflammation of the peritoneum was apparently due to the ascites caused by this. Paracentesis was performed in both cases, in the first sixteen times, in the second twice. Both died in a state of coma. The peritoneum was found covered internally by a false membrane of several layers, in the most superficial of which, less firm than the older ones, were recent blood-clots. The writer thinks that the removal of the fluid, and by this of pressure from the abdominal walls, caused a capillary fluxion in the peritoneum, setting up a chronic inflammation. He holds that in all essential conditions the appearances described by him resemble those found in that form of chronic inflammation of the dura mater which Virchow ('Die Krank. Geschw.,' i, 140, and elsewhere) has termed chronic hæmorrhagic pachymeningitis. In one of his own cases he found a similar condition of the dura mater.

C. Bäumler gives (ib., lix, 156) a very similar case. A man who died at last of chronic Bright's disease had undergone paracentesis abdominis four times in three months. At the second operation the fluid removed was sanguineous, at the third sanguino-purulent, and at the fourth simply purulent. On opening the abdomen a closed sac, pigmented on its posterior surface, and filled with fibrin and pus, was found altogether concealing the intestines. The false membrane was made up of several layers, the innermost consisting to a large extent of fibrin and fat-granules.

Henoch also gives ('Berl. Klin. Woch.,' 1874, 109) a case of chronic peritonitis in a child whose abdomen was punctured four times, and in whom towards the close of life a tumour of unusual kind was noticed in the neighbourhood of the navel. Post mortem, it was seen to be made up of callous thickenings of the serous coat of the intestine. In addition there was recent peritonitis and hæmorrhagic perihepatitis, contraction of the mesentery, and tight adhesions between the coils of the small intestine. No symptoms of any damage to the digestive system had been presented during life.

Anderson, "Case of Tubercular Peritonitis with Effusion" (boy, æt. 3, paracentesis with aspirator, recovery), 'Glasg. Journ.,' n. s., vi, 334. Ferrand, "Péritonite chronique devenant aiguë pas perforation; autopsie, foie gras, rétention bilieuse et chyleuse, plusieurs lombrics," 'Union Méd.,' xvi, 105. Handfield Jones, "On cases of Peritoneal Strumous Disease," 'Med. Times and Gaz.,' 1873, ii, 29. Morin, "Péritonite rhumatismale," 'Gaz. des Hôp.,' 1873, 414. Martin, on same, ib., 276, and see ib., 301. Desplats, "De la Péritonite rhumatismale," 'Union Méd.,' xvi, 169. Crocq, "Péritonite et Pleurésie consecutive" (boy, æt. 18), 'Presse Méd. Belge,' 1874, 212. Id., "Colite et Péritonite" (male), ib., 238. Magill, "Obscure Peritonitis" (man, æt. 40, autopsy), 'Brit. Med. Journ.,' 1874, ii, 587. Marshall, "Case of Malignant Disease of Omentum" (man, æt. 46, encephaloid), ib. ib., 174. Browne, "Colloid Cancer of Abdomen in a Man, simulating Ovarian Dropsy," 'Lancet,' 1873, ii, 152. Thompson, "Two cases of Perityphlitis in which Recovery took place," ib. ib., i, 736. Allan, "Case of Acute Typhlitis," ib. ib., 770. Chandelux, "Note sur un cas de Pérityphlite avec épanchement stercoral consécutif," 'Lyon Méd.,' xii, 511. Waldeyer, "Hernia retroperitonealis, &c.," 'Virch. Arch.,' lx, 66. Rajewsky, "Resorption u. Verbreitung von Krebs im Zwerchfell," 'Centralbl.,' 1874, 531.

## F. Affections of the Kidney.

### (a). *Nephritis; Pyelitis.*

A. L. Galabin ('On the Connection of Bright's Disease with Changes in the Vascular System,' Lond., 1872, pp. 39), discussing the questions whether changes in the vessels are confined or not to cases of granular contracted kidney, and whether these changes are the effect of the renal disease or of a general condition, gives tables of all cases of granular kidney and of tubal nephritis (scarlatinal dropsy excluded) occurring in Guy's Hospital from 1869 to 1872 inclusive. His general conclusion is that hypertrophy of the left ventricle belongs especially to a granular kidney, but in some degree also to a tubal nephritis of long standing; and this is a strong argument for its resulting from the renal mischief, and not from some third condition. He holds the old opinion that the heart hypertrophy is due to the altered quality of the blood, and opposes Dr. G. Johnson's views as to the resistance of the small arteries. He thinks it "simpler to suppose that the impediment is in the capillaries, and is due to a modification of capillary attraction between the blood and the walls of the vessels, and that, the arterial pressure being thus increased, the muscular walls of heart and arteries are both hypertrophied in concert, since both have to act against greater resistance." Examining the small arteries of the pia mater in salt-solution, he finds both muscular and external fibroid coats thickened. On irrigating the preparations with glycerine the external fibrous coat and the tunica intima become somewhat swollen after a time, and the former assumes what has been described as the "hyalin-fibroid" appearance. He has never seen this without the use of glycerine, nor does he think that it indicates the presence of any special material. If glycerine, very slightly acidulated, be used —even to a perfectly healthy artery—the external coat becomes at once much swollen and very hyaline, and the tunica intima becomes wavy and its longitudinal fibres more distinct. He concludes that microscopic examination does not reveal such a change in arterioles and capillaries as to show that the prime cause of kidney degeneration and heart hypertrophy must be sought for there. He next gives the

results of sphygmographic tracings, his interpretation of which is that even in the early stage of acute nephritis such an impediment to the circulation may occur from altered quality of the blood that the arterial pressure is increased and the heart's contraction made more laborious. If this be true it is easy to understand that this state of things, if continued long enough, will cause the muscular walls both of heart and arteries to become hypertrophied.

F. Samuelsohn records ('Virch. Arch.,' lix, 257) three cases (two in the text and one in an appendix) of what he considers to be hereditary Bright's disease, and explains them on the ground that there is in these cases a congenital malformation of the blood-vascular system.

W. H. Barlow remarks ('Lancet,' 1874, ii, 151) on the occurrence of granular contracted kidney in a girl not six years old. A few months before death she had convulsions, the urine was albuminous, there was sickness and headache, and finally coma. Both kidneys were very small, especially the right, granular on the surface, with increase of the interstitial tissue and decrease of the cortical substance, together with one or two small cysts in the left organ. These naked-eye appearances were perfectly confirmed on microscopic examination. The heart was large, the left ventricle hypertrophied and dilated; during life there had never been anasarca. The writer enlarges at length on the opinions of various writers on Bright's disease.

W. H. Dickinson ('Med.-Chir. Trans.,' lvi, 223) writes on the so-called "surgical kidney," a peculiar suppurative condition produced, as he shows, by the contact of unhealthy urine. Of all renal disorders, next to the varieties of albuminuria, it is the most destructive to life. After referring to the published views of Rayer, Brodie, Hawkins, and Wilks, he describes the naked-eye and microscopical appearances of the organs affected. The morbid change essentially consists of a peculiar turgidity and friability of the renal tissue, with the formation of small scattered abscesses, or soft yellow deposits antecedent to abscesses, throughout its structure. The cones usually display sharply defined white lines—distended tubes. With this condition the microscope shows more or less dilatation of the straight tubes, distension or morbid occupation of the associated blood-vessels, and disseminated intertubular suppuration, the distribution of which is regulated by the course of the veins. Plates are added to the text, illustrating well the microscopical appearances. Taking the structural changes in their mutual relation, the dilatation of the tubular exits, the morbid occupation of the veins, and the general absence of signs of tubal inflammation, the nature of the process is clear. The disorder has its origin in the regurgitation of urine charged with morbific products, this distends or occupies the straight ducts, and thence by transudation, or similarly, enters the neighbouring blood-vessels, charging them with infective matter, which is distributed by the veins to the rest of the gland; and this resulting condition of the kidney may be described as one of pyæmia arising within itself. As to the primary contamination of the urine, the writer has collected the particulars of 69 cases from the post-mortem books of St. George's Hospital. He finds that three conditions usually concur—retention,

ammoniacal decomposition, and admixture with the products of mucous inflammation. The clinical antecedents of this condition of the urine are, generally, of three kinds—obstacles to the escape of the urine, loss of expulsive power, and vesical or, very rarely, pelvic irritation. In cases otherwise so tending, catheterization, lithotrity, &c., may at times apparently light up the condition, thus stigmatised as "surgical kidney," which would be better distinguished clinically as *uriseptic.* The course of the disease resembles that of pyæmia, differing from it in the usual exemption of other organs from the suppurative process. (A report of the discussion on this paper may be found in the 'Lancet,' 1873, i, 342.)

Béhier, "Plusieurs cas de Néphrite catarrhale *à frigore*," 'Gaz. des Hôp.,' 1873, 241. Gairdner, "Case of Acute Renal Dropsy, of ten days' standing, obstinately resisting all treatment, and ending fatally at the end of about seven weeks. Slight febricula for four or five days only. Very little desquamation of epithelium, but intense albuminuria, with hyaline and fatty granular casts. P.-M. Cloudy and granular epithelium, without much displacement. Large white kidney" (boy, æt. 12), 'Glasg. Journ.,' n. s., vi, 346. Aerts, "Néphrite albumineuse aigue, spasmes éclamptiques, mort par œdème cérébrale, autopsie," 'Presse Méd. Belge,' 1874, 33. Carpentier, "Néphrite albumineuse chronique, péricardite fibrineuse, hypertrophie du cœur, bronchite chronique et œdème pulmonaire, altération du foie et de la rate, méningite chronique et œdème cérébrale, gastrite chronique" (man, æt. 42), ib., 161. Morand, "Néphrite parenchymateuse, à marche insidieuse, confusion possible, au début, avec un ictére grave, péritonite rapidement mortelle" (soldier, æt. 22, autopsy), 'Gaz. des Hôp.,' 1873, 882. Lécorché, "Néphrite interstitielle hyper-plasique ou sclérose du rein," 'Arch. Gén.,' xxiii, 257. G. Johnson, "The Pathology of Chronic Bright's Disease with Contracted Kidney, with especial reference to the Theory of 'Arterio-capillary Fibrosis,'" 'Med.-Chir. Trans.,' lvi, 139 (noticed in last Report, p. 168). Hogg, "Nephritic Retinitis" (boy, æt. 18, granular kidneys, hypertrophied heart), 'Lancet,' 1873, ii, 702. Thompson, "Case of Granular Disease of the Kidney, with fatal Hæmorrhage from the Mucous Membranes" (man, æt. 26, autopsy), ib., 1874, i, 798. Paterson, "Case of Granular Disease of the Kidneys, with Hæmorrhage from the Mucous Membranes" (man, æt. 57, autopsy), ib. ib., i, 873. Law, "Case of Chronic Bright's Disease [mixed form]" (woman, æt. 33, autopsy), ib. ib., ii, 546. Headland, "Case of Chronic Bright's Disease proving fatal by severe Hæmorrhage" (from mouth, nose, and ears, in man, æt. 30), 'Med. Times and Gaz.,' 1874, i, 126. C. H. Jones, "Two cases of Bright's Disease; Symptoms of Hæmorrhage into the Pons Varolii, death, autopsy" (men, æt. 60 and 47), ib. ib., 448. Burman, "Case of Bright's Disease, diagnosed in the first instance by means of the Ophthalmoscope, death from convulsions, interesting autopsy," ib., 1873, i, 62. Stewart, "On a case of Cirrhosis of the Kidney," ib. ib., ii, 247. Id., "Remarks on Chronic Bright's Disease, particularly the cirrhotic form," 'Brit. Med. Journ.,' 1873, ii, 565. Barlow, "Granular Contracted Kidney in a child six years of age," ib., 1874, i, 488. Ollivier, "Mémoire sur un variété non décrite de Pyélo-néphrite ou Pyélo-néphrite hémato-fibrineuse," 'Arch. de Phys.,' v, 43. R. Southey and T. Smith, "Nephritic Abscess opened from the Back" (man, æt. 54), 'Lancet,' 1873, ii, 772. Dowse, "Nephritic Abscess, tapping, recovery" (girl, æt. 18), 'Med. Times and Gaz.,' 1874, ii, 632. Duffin, "Perinephritic Abscess" (boy, æt. 14, autopsy), 'Path. Soc. Trans.,' xxiv, 138. Goodhart, "Surgical Kidneys" (man, stricture, with plate), ib., 144.

### (*b.*) *Hæmaturia; Wounds, &c.*

J. Parrot ('Arch. de Phys.,' v, 512) writes on a condition which he thinks has not been described before, consisting in a considerable accumulation and peculiar arrangement of the red blood-cells in the tubules of the kidney, for which he proposes the name "tubul-

hématie." The two cases which he gives as examples occurred in new-born children, male and female, which were attacked, a few days after birth, with epileptiform (uræmic) convulsions, strabismus, dyspnœa, &c., and presented a bronze colouration of the skin and brown tinge of the urine. The autopsy of both cases is given in full. The kidneys, in addition to small points of suppuration in the cortical substance, showed brown stripes radiating through the pyramids and running into the cortex; under the microscope these were found to be the tubules crammed more or less with casts formed by the red blood-cells. The tube epithelium was generally intact, though in some places fatty; the glomeruli and blood-vessels generally were unaffected. In the second case, in addition to these changes, which were less advanced, there was a thrombosis in the veins. After stating that this last occurrence is common in the kidneys of children affected with atrophy, the writer compares with the two cases described three of thrombosis of the renal veins and one recorded by Vulpian resembling these of "tubular hæmorrhage," and sums up his paper with the conclusion, among others, that this "tubul-hématie rénale" is due to a primary dyscrasia of the blood, while the thrombosis of atrophy (athrepsie) has its cause in disorder of the digestive organs. Both lesions, as in the text, may occur in the same subject. A plate of the microscopical appearances found is given.

P. E. Andant ('Bull. Gén. de Thérap.,' lxxxv, 226), after remarking that the position of the kidneys protects them almost completely from direct blows, gives a case which he considers to be one of contusion of the left kidney, so far as he is aware the second reported case, the first having been published in the 'Gaz. des Hôpitaux' (1869, No. 102). A girl four years old was thrown out of a cart drawn by oxen, though how she fell remains a matter of doubt. For some moments she was senseless, and on returning to consciousness complained of severe pain in the left lumbar region, felt desire to make water, but could not do so easily. Next night she passed bloody urine twice; later there was fever and pain in the side, which disappeared after the employment of belladonna liniment and poultices.

M. Socoloff records ('Berl. Klin. Woch.,' 1874, 233) the case of a man, æt. 36, who had been affected fifteen years previously with syphilis, and had suffered an injury to the head eight years before he came under notice. He had had pain in the left lumbar region, and whenever he was exposed to cold his urine was found to contain blood-cells and casts of various kinds. He had also some paralysis of the left side, and Botkin, under whose care the patient was, refers the hæmaturia to a local affection of the brain, and a secondary disturbance in the vaso-motor centres of the kidney, causing hæmorrhage through the vessel-walls of the latter by means of the increased blood-pressure brought about by cold.

Druitt, "Two cases of Intermittent Hæmaturia," 'Med. Times and Gaz.,' 1873, i, 461. Engelsberg, "Augenfällige Wirksamkeit des phosporsauren Kalkes in einem Falle hartnäckiger Nierenblutung" (lasting six weeks, and rapidly cured by the drug given in doses of a quarter of a teaspoonful four times a day), 'Wien, Med, Woch.,' 1873,

No. 52. Brandt, "Exstirpation einer Niere nach vorhergegangener zufälliger Verletzung derselben mit vollstandiger Heilung" (man, æt. 25), ib., No. 48.

### (c.) *New Growths; Hydronephrosis, &c.*

J. v. Perewerseff writes ('Virch. Arch.,' lix, 227) on the development of cancer in the kidney, confirming the view that it originates in the epithelium of the renal tubules. He gives a very full account, with plates, of the post-mortem examination of a case, and its microscopical results; at first there is mainly a growth of the epithelium, followed by secondary growth of the connective tissue.

Jolly ('Berl. Klin. Woch.,' 1873, 241) gives the following case. A girl, æt. 19, perfectly well up to August, 1872, caught cold, took to her bed with malaise, fell into an apathetic condition, and refused to take food. The pulse was slow, the temperature normal. The urine had to be drawn off, and was scanty and high coloured. At first it contained no albumen, but traces appeared on the fifth day, and increased rapidly to an intense albuminuria. There was no œdema; the pulse became small and quick; the cerebral symptoms increased, with lucid intervals, and there was profuse menorrhagia. On the twelfth day she was sent to an asylum, her restlessness and excitement subdued by injections of morphia, and her food given forcibly. About the twenty-sixth day the albumen began to decrease, and in a few days completely disappeared; there was then incontinence of urine and of fæces, but she gradually improved and at the time of the last note was in perfect health. Jolly considers this as one of those less frequent cases in which symptoms of insanity were caused by the kidney disturbance, and refers to four cases published by Hagen in 1870, as follows:—1. A woman, æt. 46, caught cold, and had acute delirium; after death both kidneys were found to be atrophied. 2. A case of melancholia, with hydronephrosis of the right, with granular left, kidney. 3. A man, æt. 73, after suffering from mania for a year and a half, was found to have only one kidney. 4. A man, ill for 20 years, latterly with symptoms of melancholia, died at last with contracted kidneys and waxy liver.

Loomis publishes ('New York Med. Journ.,' xx, 60) the termination of a case of pyo-nephrosis (see ib., xix, 608). The patient died 52 hours after the operation; the abdominal tumour measured 9½ inches in length by 6 in width and 3 in depth, and was made up of kidney tissue; the ureter was dilated so as to admit the index finger, and was occluded about an inch above its entrance into the bladder.

Neumann, 'Essai sur le Cancer du Rein,' Paris, 1873, pp. 86. Michel, "Cancer primitif du Rein" (man, æt. 77, cancer [?] of right kidney, supra-renal body, ureter, prostate, abdominal glands, and lungs), 'Presse Méd. Belge,' 1874, 177. "Malignant Growth involving the Left Kidney and Supra-renal Capsule of a Child æt. 17 months," 'Guy's Hosp. Gaz.,' 1874, v, 9. Fussell, "Malignant Disease of the Kidney with a Normal Condition of the Urine" (man, æt. 25, autopsy), 'Lancet,' 1873, i, 131. "Malignant Disease of Kidney" (child, æt. 4½), ib., ii, 113. Allwood, "Case of Carcinoma in a Child" (boy, æt. 1¾, encephaloid cancer of right kidney, pancreas, lungs), ib., 1874, ii, 49. G. Johnson, "Sarcoma of Kidney, Lungs, and Brain" (man, æt. 36, paralysis of right side, autopsy), ib., 1873, i, 769. Holmes, "Pulsating Cancer of the Kidney" (man, æt. 49), 'Path. Soc. Trans.,' xxiv, 149. Dowse, "Sarcomatous Carcinoma of the Left Kidney" (male, age not stated), ib., xxv, 172. Cayley and Woodman, "Cystic Tumour of the Right Kidney, associated with Echinococcus Cyst"

male, æt. 7 months), ib. ib., 173. Curnow, "Atrophied Kidneys with Impacted Calculi" (man, æt. 46), ib., xxiv, 148. Simon, "Exstirpation einer Niere bei Steinkrankheit" (left kidney, woman, æt. 30, death on 31st day), 'Arch. f. Klin. Chir.,' xvi, 48. Aillaud, "Une observation de Cystite rebelle avec Néphrite calculeuse," 'Lyon Méd.,' xii, 41. Elliott, "Renal Abscesses from Calculi" (girl, æt. 19, autopsy), 'Lancet,' 1874, ii, 695. Gee, "A case of Renal Calculi," ib., 1873, ii, 810. Hutchinson, "On the Suppression of Urine as a consequence of Renal Calculi," ib., 1874, ii, 1. Southey, "Suppression of Urine for Eleven Days, death, destruction of left kidney y old inflammation, recently impacted calculus in right ureter" (woman, æt. 52), ib. ib., i, 11. Peschek, "Neun Tage anhaltende Urinverhaltung in Folge von Nierensteinen, Heilung" (man, no symptoms of blood poisoning), 'Arch. d. Heilk.,' xiv, 568. Morris, "On the Passage of Renal Calculi down the Ureters" (three cases), 'Brit. Med. Journ.,' 1874, i, 448. Clogg, "Spontaneous Passage of a large Calculus from the Bladder of a Female," ib. ib., i, 577. Cole, "Movable Kidney" (woman, æt. 27: right kidney?), ib. ib., i, 453. S. Thompson, "Scrofulous Kidney," ib., 1873, ii, 619. Cole, "A case of Intermitting Hydronephrosis" (man, æt. 23, alive), ib., 1874, ii, 401. Blondeau, "Hydronéphrose rapide terminée par la rupture de la poche et la mort du malade" (man, æt. 68, no autopsy), 'Gaz. des Hôp.,' 1874, 826.

The following papers deal with kidney affections in their more general aspect:

Hartsen, "Bemerkungen über die Diät bei Chronischer Albuminurie und die weitere Behandlung dieses Uebels," 'Virch. Arch.,' lix, 529. Finlayson, "Report on Renal Cases observed in Professor Gairdner's Clinique during the last session (1872–73)," 'Glasg. Journ.,' n. s., vi, 44 (45 cases). Mahomed, "The Etiology of Bright's Disease and the Pre-albuminuric Stage," 'Med. Chir. Trans.,' lvii, 197, 'Lancet,' 1874, i, 621. Id., "The Relation between Arterial Tension and Albuminuria," 'Brit. Med. Journ.,' 1874, i, 679, 741. G. Johnson, on same, ib. ib., 606, 706. Id., "Lectures on the Pathology, Diagnosis, and Treatment of Bright's Disease," ib., 1873, i, 1. Id., "The Etiology of Albuminuria as deduced from an analysis of 200 consecutive cases," 'Lancet,' 1873, i, 807. Sibson, "On the Influence of Bright's Disease—(1) on the heart and arteries, and (2) on the production of inflammation," ib., 1874, i, 437. Stewart, "On the Inflammatory Form of Bright's Disease," 'Med. Times and Gaz.,' 1873, i, 593. Laycock, "Are Morbid Functional States of the Cerebellum, Medulla Oblongata, and Spinal Cord causes of Albuminuria and Bright's Disease?" ib. ib., ii, 30. Ollivier, "De la Congestion et de l'Apoplexie rénales dans leur rapports avec l'Hémorrhagie cérébrale" (see abstract under latter), 'Arch. Gén.,' xxiii, 129. Clark, "Clinical Remarks on a Case of Renal Inadequacy," 'Med. Times and Gaz.,' 1873, i, 1. Kisch, "Bright's Disease, suppression of urine for twelve days, return of diuresis, death from convulsions" (no autopsy), 'Brit. Med. Journ.,' 1873, ii, 601. Morand, "Contribution à l'histologie pathologique de la Maladie de Bright," 'Rec. de Mém. de Méd. Milit.,' xxix, 307. Englisch, "Zur Pathologie der Harn- und Geschlechtsorgane," 'Wien. Med. Jahrb.,' 1873, 61.

*Analysis of Urine, &c.*

H. Nothnagel ("Harncylinder beim Icterus," 'Deut. Arch.,' xii, 326) has remarked in cases of jaundice, arising from various causes, whether accompanied or not by fever, the occurrence of casts in the urine, in greater or less number, and apparently in direct proportion to the intensity of the jaundice. These casts were generally hyaline, carrying formed elements or nuclei, and sometimes covered with epithelial cells of a yellowish tinge. The occurrence of so-called fibrinous casts was exceptional, nor were red blood-cells or albumen found in the urine.

G. Johnson ('Lancet,' 1873, ii, 812) has noticed a temporary albuminuria, without casts, in healthy persons, after prolonged cold bathing.

H. Eichorst ('Berl. Klin. Woch.,' 1874, 73) examining the urine of

a man suffering from granular kidney, found for six days an abundant sediment, composed almost entirely of hyaline casts, with others more or less granular, of very unusual size. Most were one line, several even two lines, long, of the thickness of a scalp-hair. Some showed a double contour or were split into two arms. They were coloured yellow by iodine, destroyed rapidly by alkalies and nitric acid, and very slowly by acetic and hydrochloric acids, while a weak solution (1 to 4) of sulphuric acid had no effect upon them. The quantity of casts gradually decreased, and lymph-cells and epithelial cells in large numbers replaced them.

C. H. Ralfe draws ('Lancet,' 1873, i, 872) the following conclusions from his observations as to the amount of blood diffused in urine in hæmaturia:—1. That a *smoky brown* colour is imparted to urine when blood is present in quantities of 1 part in from 1600 to 400. That a *cherry red* colour is given when 1 part in 350 to 200 is present. That a dull *maroon red* is given when 1 part in 150 to 100 is present. In more concentrated solutions the colour assumes a deep *chocolate brown*. 2. That the quantity of blood which gives to urine these distinct colours is much less than has been hitherto supposed.

Drawings are given in the 'Lancet' (1873, i, 56) of the hæmatozoon found by T. R. Lewis in chylous urine and in the blood of persons suffering from chyluria in Calcutta. One of the patients, a woman about 35 years of age, of pure English parentage, had laboured under chyluria for sixteen years, with occasional periods of apparent cure. Hæmatozoa were present in blood taken from all parts of the body and in the urine. She died from diarrhœa, and after death numerous hæmatozoa were found in the renal artery, renal veins, and every part of the kidney. Though this parasite has been found in from fifteen to twenty persons affected with chyluria, and no case has occurred in which it has been absent, Lewis does not refer all cases of chyluria to this cause.

Paschano, 'Des Urines au point de vue physiologique et pathologique,' Paris, 1873. Bouchard, "Leçons sur les Urines," 'Gaz. Hebd.,' 1873, 3. Girgensohn, "Zur Albuminometrie und zur Kenntniss der Tanninverbindung der Albuminate," 'Deut. Arch.,' xi, 613. Galippe, "De l'Acide picrique comme réactif de l'Albumine dans les essais cliniques," 'Gaz. Méd.,' 1873, 122. G. Johnson, "On a Rare Modification of Albumen in the Urine," 'Brit. Med. Journ.,' 1874, ii, 618. Pawlinoff, "Bildungsstätte der Harnsäure im Organismus," 'Centralbl.,' 1873, 241. Ewald, "Ueber den Kohlensäure-gehalt des Harns im Fieber," 'Arch f. Anat.,' 1873, 1. Ord, "On the Relation of Uric Acid to Gout," 'Med. Times and Gaz.,' 1874, i, 233. Reoch, "The Acidity of Normal Urine," 'Lancet,' 1874, ii, 549. Russell and West, "On a Simple Method of estimating Urea in Urine," 'Journ. Chem. Soc.,' 1874, August, and 'Practitioner,' 1875, Feb., p. 86. Roux, "Des variations de la quantite d'Urée excretée avec une alimentation normal et sous l'influence du thé et du café," 'Compt. Rend.,' lxxvii, 365. Rabuteau, 'Des variations de l'Urée sous l'influence de la caféine, du café, et du thé,'' ib. ib., 489. Musculus, "Sur un papier réactif de l'Urée," 'Gaz. Méd.,' 1874, 45. De Sinéty, "Recherches sur l'Urine pendant la lactation" (occurrence of sugar), ib., 1873, 573. Hooper, "On Fehling's Test and the Significance of Sugar in the Urine," 'Lancet,' 1873, i, 360. Feltz and Ritter, "Étude expérimentale sur l'alcalinité des Urines et sur l'ammoniémie," 'Journ. de l'Anat.,' 1874, 311. Bouillaud, "Réflexions sur l'état ammoniacal de l'Urine," 'Gaz. des Hôp.,' 1874, 57 (and see discussion on the subject in the Academy of Medicine, 'Gaz. Méd.,' 1874, 46). Gosselin and Robin, "L'Urine ammoniacale et la Fièvre urineuse, re-

cherches expérimentales," 'Arch. Gén.,' xxiii, 530. Heidenhain, "Versuche über den Vorgang der Harnabsonderung," 'Pflüger's Arch.,' 1874, ix, 1. Gopal, "Observations on Fatty Urine" (man, æt. 22), 'Med. Times and Gaz.,' 1873, i, 651. Amyot, "Case of Fatty or Chylous Urine, with Observations" (boy, æt. 6), ib., ii, 61. G. Smith, "Two cases of Chyluria," 'Med. Times and Gaz.,' 1874, i, 37. Oehme, "Ein Fall von intermittirender Chylurie" (man, æt. 50), 'Deut. Arch.,' xiv, 262. Seligsohn, 'Zur Bildung der Oxalsäuren Concremente," 'Centralbl.,' 1873, 337. Fürstner, "Zwei seltene Fälle von Concrementbildung in den Harnorganen" (without marked symptoms, men, æt. 72 and 62), 'Virch. Arch.,' lix, 401. A. B. Garrod, "Renal Calculus, Gravel, Gout, and Gouty Deposits, and the value of Lithium Salts in their treatment," 'Med. Times and Gaz.,' 1873, i, 299. G. Harley, "On the Mode of Formation of Renal Calculi," ib. ib., ii, 393. Carter, "The Microscopic Structure and Mode of Formation of Renal Urinary Calculi," 'Dubl. Journ.,' lxvi, 493. Ralfe, "The Origin of Renal Calculi," 'Lancet,' 1874, i, 900. Ridge, "Solvents for Urinary Calculi," ib., 1873, i, 392. Mayençon and Bergeret, "Moyen clinique de réconnaitre la mercure dans les Excretions et specialment dans l'Urine," &c., 'Lyon Méd.,' xii, 82. Wilks, "Clinical Remarks on the Resina Copaibæ as a Diuretic," 'Lancet,' 1874, i, 410. Nelson, "Curious Protozoon in Urine" (with picture resembling cotton.—*Rep.*), 'New York Med. Journ.,' xvii, 295. Merson, "The Urinology of General Paralysis," 'West Riding Rep.,' iv, 63.

## G. Affections of the Skin.

### *General Papers.*

Petrowsky ('Centralbl.,' 1873, 401) refers to the occurrence of white lines on the skin (rayure blanche) noticed by Bouchut in scarlet fever ('Traité pratique des Maladies des Nouveau-nés,' 5th edit., 748) and by Bäumler in other diseases (see this Report, p. 49). He holds that the same phenomenon may be made to show itself in perfectly healthy skin by scratching it gently with the point of a glass rod or the finger-nail. Its absence, on the other hand, is due to an abnormal condition of the skin; for instance, it does not occur after making the skin red by rubbing. With other writers he thinks the phenomenon is caused by contraction of the cutaneous arteries, while its absence is due to their paralysis.

C. J. Eberth finds (ib., 307) in ordinary and yellow sweat small oval bacteria frequently connected in strings of two or three and showing active movements. In hairy spots they are found attached to the hairs, often in thick layers. They also penetrate into the interior of the hair, causing it to split up and break. Colouring with hæmatoxylin brings out, not only the colonies seated on the hairs, but also separate bacteria. He promises to inquire further into the question whether these organisms have anything to do with certain chemical changes in the sweat.

Rathery writes ('Union Méd.,' xvii, 326) on the differential diagnosis of eruptions due to arsenic and syphilis. With certain brownish discolorations and pustules—so-called "arsenic chancres"—said to resemble true syphilitic chancres, the writer fails, as might be expected, to find any specific induration or secondary glandular enlargements. Artificial flower-makers, hat-makers, and ladies who use arsenic powder among the other articles of their toilet, are common subjects of these eruptions.

Neumann ('Wien. Med. Woch.,' 1873, No. 49) has noticed the occur-

rence of an eruption in a child of five months, after the use of large doses of bromide of potassium. A minute examination of a portion of skin showed that the hair-bulbs, sweat-glands, and upper portions of the cutis, were affected. He thinks that the drug acted directly through the glands and set up inflammation and increase of the cellular elements.

Tomsa, "Beiträge zur Anatomie und Physiologie der Menschlichen Haut," 'Arch. f. Derm. u. Syph.,' v, 1. Simon, 'Localisation der Haut-krankheiten,' Berlin, 1873, pp. 162 (with five plates). Bernhardt, 'Die Sensibilitäts-verhältnisse der Haut,' Berlin, 1874, pp. 25 (with plate). S. Klug, "Untersuchungen über die Wärmeleitung der Haut," 'Zeitsch. f. Biol.,' x, 73. Hayem, "Notes sur deux cas de Lésions cutanées consécutives à des Sections de Nerfs" (men, æt. 50 and 24), 'Arch. de Phys.,' v, 212. "Influence de l'Alcoolisme sur divers groupes d'Affections cutanées," 'Gaz. des Hôp.,' 1874, 195. Treille, "De l'Ulcère phagédénique des Pays chauds," 'Arch. de Méd. Nav.,' xxi, 193. Squire, "The Influence of Age in the Causation of Skin Disease," 'Brit. Med. Journ.,' 1873, i, 641. Roose, "Two cases of Alopecia successfully treated by Local Stimulants," ib., 1874, ii, 618. Davies, "Acute General Hypertrophy of the Papillary Layer of the Skin," 'Lancet,' 1874, ii, 448.

### *Erythema.*

Hardy ('Gaz. des Hôp.,' 1873, 762) lectures on the case of a woman, æt. 33, affected with symmetrical erythema multiforme (Hebra). He cannot hold with Bazin that it is one of the manifestations of a general malady (arthritis, rheumatism), but looks upon it as a primary affection, the place of which is nosologically by the side of the eruptive fevers.

W. M. Baker reports ('St. Barth. Hosp. Rep.,' ix, 198) on a disease which he calls Erythema Serpens, frequent in cases of minor surgery. It seems to consist in the presence of pink blotches, accompanied by some œdema, especially on the finger-joints and knuckles, unaccompanied by any glandular enlargement or much constitutional disturbance. All the cases he has seen (and they all appear to be a form of mild pyæmic poisoning—*Rep.*) recovered after a period of fourteen days to six weeks, the average being three weeks.

### *Eczema.*

Myrtle, "Remarks on Dr. Mapother's views as to the Nature and Treatment of Eczema," 'Med. Press and Circ.,' 1873, i, 224. Hardy, "Dermatologie" (clinical lecture on eczema), 'Gaz. des Hôp.,' 1873, 763. Gayat, "De l'Eczéma des Paupières," 'Annal. de Derm. et Syph.,' iv, 363.

### *Urticaria, Lichen, Acne, &c.*

Finlayson showed ('Glasg. Med. Journ.,' n. s., vi, 429) two children, sisters, whose skin rose in wheals resembling urticaria on any slight irritation.

For the recurrence of Psoriasis Caspar gives ('Deut. Klin.,' 1873, 198) four to six drops of Fowler's solution four times a day, and orders equal parts of liquid pitch and glycerine to be smeared over the eruption at bed-time, and to be washed off in the morning with soap and lukewarm water.

T. Fox, "Purpura Urticans produced by Inhalation of Friar's Balsam," 'Lancet,' 1874, i, 195. Mackey, "Local treatment of Lichen Urticatus," 'Brit. Med. Journ.,'

1874, ii, 810. B. Squire, "The Etiology of Psoriasis," ib., 1873, i, 141, and ib., 312. Myrtle, "Remarks on Psoriasis," ib., 225. Gaskoin, "On the Relation of Psoriasis with Nerve-Disorders," ib. ib., 430. Duckworth, "Clinical Notes on the Treatment of Psoriasis," 'Lancet,' 1874, ii, 7. Duhring, "Ueber die sogenannte Psoriasis Syphilitica," 'Vierteljahrschr. f. Derm. u. Syph.,' 1874, 53. T. Fox, "Successful Treatment of Pityriasis Rubra," ib. ib., i, 294. Id., "The Treatment of Non-parasitic Sycosis," ib., 1873, ii, 902. Purdon, "On a hitherto undescribed form of Skin Disease" (? a form of acne —*Rep.*), ib., 1874, ii, 725. Gaskoin, "Case of True Sycosis," 'Med. Times and Gaz.,' 1873, ii, 89.

## *Zona (Herpes Zoster).*

M. Kaposi describes ('Wien. Med. Woch.,' 1874, No. 25), under the name of Zoster cervico-brachialis gangrænosus, a peculiar form of the affection, which differs in many points from cases already recorded. The patient was a woman, æt. 42, who presented large and small groups of vesicles, and in other parts green and black scabs, some round, some in streaks. The peculiarity of the grouping, exactly similar to that of herpes circinatus, consisted in the fact that rings of new vesicles rose along the borders of the dry and scabbed portions till the eruption grew from the size of a kreuzer to that of a thaler (about the size of a farthing to that of a half-crown-piece—*Rep.*) It spread continuously from the fingers and back of the hand, extending in three days to the shoulder and mammary region of one side, and passing the middle line to the other side of the body.

A. Lagout ('Union Méd.,' xvii, 310) concludes from his observations of an epidemic of herpes labialis in 1864, supported by later experience, that the affection is not a complication of other diseases, but a malady *sui generis*, to be classed among the eruptive fevers, differing from them only in its absence of contagion and capability of recurrence. Its extension to the larynx and the lungs is described under the names "herpetic angina" and "herpetic pneumonia." The appearance of herpes labialis is a favourable symptom in the prognosis of pneumonia. (This paper seems to be an example of the fallacies to be corrected by the method of concomitant variations.—*Rep.*)

Hänisch, "Herpes Zoster" (case in a woman, æt. 23), 'Deut. Arch.,' xiii, 183. B. Squire, "Case of complete (double) Zona" (in boy, æt. 15), 'Med. Times and Gaz.,' 1873, i, 495. Carry, "Note sur un cas de Zona ophthalmique" (girl, æt. 16), 'Lyon Méd.,' xvi, 262. "Du Zona frontal ou ophthalmique et des Lésions oculaires qui s'y rattachent" (review), 'Gaz. des Hôp.,' 1873, 49. Lagarde, "De l'Herpès produit par la Névrite du Nerf ophthalmique; plus communément désigné sous le nom de Zona frontal ou ophthalmique," ib., 1874, 147. Bouchut, "Du Zona et de l'Herpès produit par la Névrite," ib., 1873, 9. Morgan, "Amyl Colloid in Shingles," 'Brit. Med. Journ.,' 1874, i, 139.

## *Pemphigus.*

G. Koch ('Jahrb. f. Kinderheilk.,' vi, 412) reports the occurrence of eight cases of Pemphigus neonatorum in three months. All the mothers were attended by the same midwife, and he concludes that, as there were no other cases in Wiesbaden during that time, the contagion was caused by the midwife's hands.

Horand ('Ann. de Derm.,' iv, 401) gives two cases of acute febrile pemphigus, occurring in a boy, æt. 17, who died, and a girl, æt. 14, who recovered. Almost the whole body, in both patients, was covered

with vesicles, which were present also on the mucous membrane of the lips and mouth. The eruption followed nearly the same course in both; small yellowish vesicles appeared in the centre of blotches of erythema, varying in extent. At first discrete, these vesicles gradually became enlarged to bullæ, some of which remained isolated, while others became confluent and formed bladders the size of a hen's egg. The eruption was accompanied by a pyrexia lasting from five to six days. The autopsy of the first patient, who died on the tenth day, showed hyperplasia and fatty degeneration of the liver, unaccompanied, however, by any of the changes which Lailler has described as taking place in the mucous membrane of the intestinal canal. A very marked symptom in the second case was severe epistaxis. The writer looks upon the whole process as an exanthematic one, and would place it in Parrol's class of herpetic fevers.

Guibout, "Le Pemphigus," 'Gaz. des Hôp.,' 1874, 665. Anderson, "Notes of a fatal case of Acute Pemphigus and Gangrene following a meal of putrid conger-eel" (man, æt. 39, death on 25th day; post mortem, liver congested, lungs anæmic, no secondary deposits anywhere), 'Lancet,' 1873, i, 875.

### *Hydroa.*

C. Handfield Jones records ('Med. Times and Gaz.,' 1873, ii, 248) the following case. A woman, æt. 22, whose only illness had been jaundice some years previously, had been subject for the last two years to frequent vomiting of blood, pain in the left side, and a recurring eruption on the left side of the chest. This side presented, on admission, pretty copiously scattered red papules, a few of which had become scabbed and quasi-pustular. The same eruption showed itself later in the left axilla, passing, like that on the chest, through the following phases:—(1) Red papular spots; (2) the same, with vesiculo-pustules developed at their apices; (3) the elevation and induration of the spot increasing, the central part becoming depressed and covered with a more or less dark scab, while the vesicle-forming process spread excentrically, producing a distinct whitish ring, enclosing the scabbed area, and itself surrounded by a zone of redness; (4) the vesicle-forming process ceased, the scab became detached, and the affected spot was left with only a whitish centre and a slightly raised red margin. These characters closely correspond with those given in a "Report on Hydroa and allied Diseases" ('Brit. Med. Journ.,' 1870, i, 490, and see "Report on Medicine" for 1869-70, 188). The writer thinks that herpes is the form of skin eruption to which it has most affinity, and proposes to apply to it the term Herpes centrifugus, which is more descriptive of the phenomena than hydroa, as the latter leads one necessarily to think of a profuse watery discharge. In the case recorded he ascribes the existence of the eruption to the "herpetic diathesis," *i.e.* a tendency to various skin disorders and to various neuroses, the former due to vasomotor nerve paralysis; and in the same way he considers the stomach symptoms, the hæmorrhage, &c., to be referable to neurotic disorder.

### *Ecthyma.*

Vidal writes ('Ann. de Derm. et Syph.,' iv, 350) on the inocula-

bility of the pustules of ecthyma. A few hours after inoculation the point of infection becomes red and slightly hard, and itches intensely. On the second day the redness extends to a centimètre in circumference, and a small papule is felt above the level of the skin. Next day the zone of redness is still larger, and the papule is developed in a vesicle filled with cloudy serum, forming the characteristic pustule of ecthyma on the fourth day. Between the ninth and tenth the latter dries up, and the scab falls off between the sixteenth and twentieth days. The pus from this artificially produced eruption is also inoculable, setting up a second pustule, the secretion of which last loses very much of the infecting power.

### *Furunculosis, &c.*

Kochmann (" Beitrag zur Lehre von der furunculösen Entzündung," 'Arch. f. Derm.,' v, 325) gives a pretty exhaustive summary of the literature of furuncular and carbuncular affections. He suggests as a more correct and practical division than the ordinary one, into follicular and areola tissue boils, a classification according to their development in sebaceous glands or in sweat-glands. He would put on one side all epithets attached to carbuncle except those of *gravis* and *levis*. He discusses the occurrence of these furuncular and carbuncular affections as complications of other diseases. He is inclined to hold that the boils met with in diabetic patients are boils originating in the sweat-glands, which, as the special secreting glands of the skin, furnished with the largest and most independent system of capillary blood-vessels, are most exposed to the irritation of the sugar, &c., contained in the blood. The excretion of sugar by the kidneys is accompanied by increased loss of water, which leads to thickening of the blood; the result of this shows itself in the sweat-glands, later in the sebaceous glands, never in the corium. In this way the absence of sweating in diabetics may be accounted for. He thinks that the occurrence of boils or carbuncle preceding any other signs of diabetes is not to be considered the starting-point of that affection, but as one of the earliest symptoms of the disease in its latent stage; and that their occurrence during the. course of a diabetes is due either to a decrease in the amount of sugar got rid of by the kidneys or to an intenser stage of the disease itself. On the same principle of the vicarious action of the skin and kidneys he accounts for the boils which originate in the sweat-glands, in uræmia, septicæmia, rheumatism, &c. In the acute exanthemata boils, especially those of sebaceous glands, are due either to hæmorrhagic exudations accompanying the eruption, to the commencement of desquamation and decrustation, by which the pores are stopped up, or to the scratching of the patient. Boils may also be noticed in pneumonia, typhus, purpura, leuchæmia, and scrofulosis. Those that occur in marasmus senilis are due to plugging of the sebaceous glands from pityriasis senilis; other local causes are dust, uncleanliness, &c. The writer argues on anatomical grounds against the possibility of boils originating in areolar tissue. He does not think it necessary to classify carbuncles into those of sweat-glands and sebaceous glands, because, though remains of both may

be found in the dead carbuncle core, it is no longer possible to recognise the original seat of the affection.

According to De Savignac ('Bull. Gén. de Thérap.,' lxxxiv, 529) the herpetic diathesis has a great share in the etiology of furunculosis. Patients suffering from the latter frequently have such affections as pityriasis capitis, acne sebacea, eczema, &c. In the treatment of the disease he lays great weight on the salts of soda and potash, which he considers to exercise a depurative action on the blood and the secretions. He uses also a solution of arseniate of soda (·1 in 200 of water), of which he prescribes a tablespoonful in a little sugar and water in the morning fasting, and before the last meal in the evening. After giving this for twenty days he orders from 20 to 30 grammes of the sulphate of soda, repeats the arsenic after ten days, and concludes with the sulphate of soda. He also uses at the same time a decoction of borage or chicory, or an infusion of sarsaparilla. Acids are especially to be avoided during the employment of arsenic. Locally he uses poultices, and, after getting rid of the core, simple diachylon plaster. As to baths he prefers sulphur to alkaline ones, and recommends bran-baths when there is great skin irritation. To complete the cure, sea-bathing may be used, but with great caution, as it sometimes causes furuncular eruptions. (! *Rep.*)

De Lisle, "Case of Malignant Facial Carbuncle" (in upper lip of girl, æt. 19, fatal in ten days), 'Med. Times and Gaz.,' 1873, ii, 4. Rogers, "A Case of Charbon" (sting of blue-bottle fly, death on second day), 'Lancet,' 1873, ii, 42.

### *Icthyosis, Scleroderma, &c.*

Boer ('Ueber Icthyosis,' Berlin, 1873) writes on a case of the affection in a man, æt. 30, of good constitution. He had been the subject of it since his first year; only one other member of his family had suffered from it. The skin was thickened over almost his whole body with the exception of the face, and the various strata of epidermis, separated from one another by cracks and chinks, were overlaid like the scales of a coat of mail, varying in size in different places. On the breast, back, and lower extremities the scales were large, irregular, and polygonal; on the neck and arms they were smaller and regularly similar. They differed also in thickness, being thinnest on the shoulders, and thickest on the neck, back, and breast. Those on the neck were almost black in colour, those on the upper part of the breast and back brownish, while those on the sternum and lower extremities had a clear, shining, grey appearance. Over the elbow and tendo Achillis the collection of epidermis was so large as to prevent motion of those parts. On the face the eruption was visible where no hair grew, the growth of beard and of hair over the whole body being slight. The secretion of the sweat-glands, absent of course where the epidermis was abnormally thickened, was abundant elsewhere, and the patient complained of itching, especially when there was increase of perspiration about the hands and feet. The eruption seems to have become slightly less in the autumn, but to have reappeared again in the course of a month. Wounds and boils, according to the patient's own account, were slow to heal. The microscopic examination of the epidermis, given at length in the text, presented nothing uncommon.

H. Hallopeau gives at length ('Gaz. Méd.,' 1873, 584) the case of a woman, æt. 36, in whom sclerodermia was accompanied by atrophy of certain bones and multiple affections of the joints. She had been perfectly well up to ten years before, when pains attacked her hands, especially in the neighbourhood of the joints. Sometimes they became suddenly cold and of a blue colour; later they showed red patches which were covered in time by small scabs; on the falling off of the latter this skin was left white and retracted. By degrees all the joints became contracted, the skin of the face was like a wax mask, unmoving and expressionless; the tongue grew small, and had but little power of movement; the joints of the fingers became anchylosed, and several of the phalanges disappeared by absorption, without any suppuration or external wound. The writer sees much analogy between this case and the affection described under the names atrophia unilateralis and trophoneurosis, and instead of sclerodermia would use the term trophoneurosis disseminata. As to the etiology of the affection he can say nothing precise, but draws attention to the facts that a brother of the patient was a lunatic and the mother was paralysed on one side (irrelevant !—*Rep.*).

N. Moore records ('St. Barthol. Hos. Rep.,' ix, 70) a case of sclerema in a child, æt. 2½, and after comparing with it six already published cases, concludes that the affection consists in hardness and immobility of the skin, without any alteration in its colour or in the epidermis, and without noticeable changes in other organs.

Lagrange, "Contribution à l'Étude de la Sclérodermie avec Arthropathies et Atrophie osseuse," Paris, 1874, p. 78. Lépine, "Mélanodermie étendu à presque toute la surface du corps, Sclérodermie bornée aux doigts, avec atrophie des phalangettes, atrophie de la moitié droite de la face" (woman, æt. 59), 'Gaz. Méd.,' 1873, 195. Coliez, "Sclérème des Adultes," 'Gaz. des Hôp.,' 1873, 97, 145. T. Fox and Knaggs, "A case of Scleroderma" (man, æt. 26), 'Path. Soc. Trans.,' xxiv, 253. Mapother, "A case of Icthyosis" (woman, æt. 42), 'Dublin Journal,' lv, 505.

### *Molluscum Fibrosum.*

J. Murray records ('Med.-Chir. Trans.,' lvi, 235) three peculiar cases of molluscum fibrosum (? *Rep.*). They all occurred in children of the same family. The eldest, a girl, æt. 7, had a variety of cutaneous growths on the face, ears, neck, fingers, and toes; extensive connective-tissue growths, frequently forming distinct, circumscribed tumours, and as large as an orange, occupied the face, scalp, trunk and extremities; they grew rapidly, were painless, deeply discoloured by extravasated blood, and moderately soft and elastic. There were two or three slight periosteal enlargements on the front of the tibia and elsewhere. The last phalanx of the fingers, with one exception, and several of the toes, were greatly hypertrophied; the nails were enlarged to a corresponding extent with the soft structures and marked by numerous transverse furrows. Occasional elevations of temperature seemed to point to intermittent increase of the growths. The tumours on the scalp increased till the skin became ulcerated and sloughed. The gums were greatly hypertrophied, fungous, and papillomatous in appearance, growing after partial removal. The affection was more or less symmetrical; there was no glandular enlargement. The child was deaf, but

intelligent. The other two children, a boy, æt. 4, and a girl, æt. 2, had enlarged gums and a slight cutaneous affection; the former had commencing enlargement of the middle finger of the right hand, and was sullen and stubborn, though apparently intelligent. The disease had commenced in all these cases a few months after birth. The eldest child of the family, a boy, æt. 10, had had none of the symptoms shown by the others. The parents were first cousins, healthy, without any history of syphilis or scrofula. The writer thinks the causes may be found in the bad hygienic conditions in which the children were placed, together with the blood relationship of the parents. Sections of some of the tumours removed showed them to consist partly of connective tissue developed into fibrous tissues, and partly of cartilage. A plate is given of the elder child's face and hand.

G. Pollock gives (ib., 255) a report of a case of the same kind occurring in a widow, æt. 33, who had been the subject of these growths from childhood. They occupied various positions; there were three large ones, and a hundred smaller ones of various sizes, in different parts of the body. The photograph accompanying the paper shows that the most remarkable and the largest commenced on the right side of the neck and extended below the umbilicus, in the shape of a long, thick, and broad pendulous flap of skin. Sections of portions snipped off showed excessive hypertrophy of the connective tissue, with abundant cell-growths occupying interspaces between the bands of fibrous tissue. The large mass was exhibited, and weighed two pounds three ounces.

*Cheloid.*

H. C. Juler, "A case of Cheloid simulating Molluscum Fibrosum" (man, æt. 43), 'Brit. Med Journ.,' 1874, i, 510. Milton, "Case of Chelis occurring on the supposed site of an injury," 'New York Med. Journ.,' xix, 171.

*Lupus, &c.*

Baumgarten ('Arch. f. Heilk.,' xiv, 188) gives the following unusual cases of lupus erythematodes. A woman, æt. 30, never affected with syphilis, had noticed, six years before she was seen, a small spot (Blüthchen) an inch and a half in front of the left ear. Soon afterwards a similar one appeared behind the ear, and before long she noticed a small bad red spot on the scalp. There was no exudation (weeping) from any of them or from others which showed themselves in the course of the year on the scalp. The hair came off in quantities, while the spots increased in size, till as they became confluent the whole of the head became bald.

Veiel ('Arch. f. Derm.,' v, 279) finds that Volkmann's method of multiple scarification, while certainly tending to cure lupus, must, in the case of lupus erythematodes, be supplemented by the employment of a caustic (equal parts of chloride of zinc and alcohol). The points of scarification, after this treatment, suppurated superficially and became covered with scabs which fell off in from six to ten days, the process being then repeated. He finds that from five to eight scarifications followed by this mode of treatment lead to complete recovery.

H. Essig gives ('Arch. d. Heilk.,' xv, 404) some pathological and histo-

logical observations with regard to lupus, as it occurred in fifteen cases. In some there was an infiltration of small cells in the corium and subcutaneous tissue, in most cases surrounding the vessels, and in several appearing as large collections of cells containing vessels; in two numerous reticulated tubercles were present; in one the cutis had been transformed into a cytogenous tissue; in two the sebaceous and sweat-glands were filled with collections of epithelium; and three preparations had the character of epithelial carcinoma. He thinks that while lupus consists essentially in a group of clinical symptoms due to irritation of the cutis leading to proliferation of its cellular elements, it cannot histologically or pathologically be strictly divided off from tuberculosis of the skin, adenoma of the sebaceous and sweat-glands, or carcinoma.

P. Baumgarten (ib., 484) describes the existence of large, uneven tubercles, covered with thickened epithelium, corresponding to one end of the same metacarpal bone in the hands of a man who died of general tuberculosis. They had beenpresent for two years before death, and had been taken for papillomata, but in their bases true reticulated tubercle was found. The tuberculosis was not complicated by any ulceration or cheesy degeneration.

Friedländer, "Untersuchungen über Lupus," 'Virch. Arch.,' lx, 15. Lang, "Ueber die Bedeutung der sogenannten Riesen-zellen im Lupus," 'Viertel. f. Derm. u. Syph.,' 1874, 368. Id., "Lupus und Carcinoma," ib, 165. T. Fox, "Case of Lupus treated without Caustic," 'Lancet,' 1873, ii, 555. Gaskoin, "On Leprosy and Lupus as Signs of Innutrition," 'Med. Times and Gaz.,' 1874, ii, 258. Bizzozero, "Ueber Tuberculose der Haut," 'Centralbl.,' 1873, 292 (see abstract under "Tuberculosis," p. 47 of this Report).

### *Lepra: Elephantiasis.*

A. Renault ("Observations de lèpre anésthetique, devenue plus tard tuberculeuse," 'Union Méd.,' 1874, xvii, 154) gives the case of a Mexican officer, æt. 19, who complained of anæsthesia of his right great toe, extending, four years later, up the right leg. At this time knots of lepra began to show themselves on the cheeks. At the age of 28 his whole body was covered with patches and knots, and two years later he had albuminuria and died. The post-mortem examination showed two ulcerated knots at the entrance of larynx, advanced granular disease of the kidney, and lardaceous degeneration of the liver.

Gaskoin, "On Leprosy and Lupus as Signs of Innutrition," 'Med. Times and Gaz.,' 1874, ii, 258. Milton, "On some cases of an unusual form of Lepra," 'New York Med. Journ.,' xix, 173. Michel, "Ueber eine Hyperplasie des Chiasma und des rechten Nervus Opticus bei Elephantiasis," 'Arch. f. Ophthal.,' xix, Abth. iii, 145. Rosenkranz, "Ueber Elephantiasis Arabum mit Auschluss von zwei Fällen von Elephantiasis der Labia Majora," Berlin, 1873. Scheiber, "Ueber zwei in Rumänien beobachtete Lepra-Fälle," 'Viertelj. f. Derm. u. Syph.,' 1874, 363. Poncet, "De la Décortication du Nez dans l'Elephantiasis" (as a consequence of excessive alcohol drinking), 'Gaz. Hebd.,' 1873, 619. Munro, "Case of Elephantiasis of the leg," 'Edin. Journ.,' xviii, 611. (For other papers see under "Endemic Diseases," p. 88 of this Report.)

### *Abnormal pigmentation, &c.*

W. S. Church publishes ('St. Barth. Hosp. Rep.,' x, 65) some notes on the hereditary character of certain forms of xanthelasma palpebrarum, a character to which C. H. Fagge first drew attention ('Path. Soc.

Rep.,' xix, 446). He gives in illustration a genealogical table of a family various members of which were thus affected. He concludes, 1. That the macular form of xanthelasma palpebrarum appears to depend often, if not chiefly, on a hereditary predisposition to this special form of change in the texture of the skin of the eyelids. 2. That it does not appear in the hereditary cases to depend on derangement of the liver or on the occurrence of sick headaches (Hutchinson), or of dusky pigmentation from other causes round the eyes, and occurs in persons of good health after they have reached middle life. 3. That the cases described as xanthelasma palpebrarum appear to be often situated around the seat of follicular irritation, and may be due to degenerative changes occurring in portions of skin which have been in a condition of hypertrophy owing to the local irritation in their neighbourhood, and are therefore distinct from the hereditary forms of the disease. 4. That the xanthelasmic condition associated with long persistent jaundice is probably entirely different from the macular form met with in the eyelids in these hereditary cases, as it affects the submucous tissues also, and is met with under the skin generally, about the flexures in the palms of the hands or the feet, and is occasionally deposited in large tuberous nodules, which occur chiefly on the extensor surfaces of the limbs. 5. That in the hereditary as in other forms of the disease females appear to be much more frequently affected than males. At the same time it does not appear (see p. 68) to be a common affection, for out of 1165 consecutive cases of women admitted into St. Bartholomew's Hospital—of whom 140 were under 20, 343 under 30, 281 under 40, 207 under 50, and 195 under 85 years of age—he found only seven or perhaps eight cases of xanthelasma, and in only three was the disease at all well marked.

Moxon, "Simple Stricture of Hepatic Duct causing Chronic Jaundice and Xanthelasma" (man, æt. 32, autopsy), 'Path. Soc. Trans.,' xxiv, 129. Fagge, "General Xanthelasma or Vitiligoidea" (female), ib., 242. Pye-Smith, "Xanthelasma (Vitiligoidea plana) of skin, Peritoneum and Mucous Membrane, associated with Jaundice, autopsy" (woman, æt. 49), ib., 251. Legg, "Hydatids of the Liver, omentum and recto-vesical pouch; compression of the hepatic duct; Jaundice; Xanthelasma multiplex" (man, æt. 25), ib., xxv, 155. Id., "Xanthelasma multiplex; Jaundice from gall-stone?" ib., 259. Lépine, "Mélanodermie étendu à presque toute la Surface du Corps; Sclérodermie bornée aux doigts, avec atrophie des phalangettes; atrophie de la moitié droite de la face" (woman, æt. 59; cf. this with Hallopean's case under "Scleroderma"), 'Gaz. Méd.,' 1873, 195. Fabre, "Des Mélanodermies, et au particulier d'une Mélanodermie parasitaire," 'Gaz. des Hôp.,' 1873, 299. T. Fox, "Morphœa Alba and its treatment," 'Lancet,' 1874, ii, 510. Stowers, "Case of Morphœa Alba," 'Brit. Med. Journ.,' 1874, ii, 517.

### *Alterations in Secretion.*

E. Fränkel ('Zur. Pathologie des Halssympathicus,' Breslau, 1874, pp. 38), in the second part of his dissertation, enlarges on a case of hyperidrosis unilateralis in a man, æt. 60, who suffered from attacks of dyspnœa, with hypertrophy of the heart and enlargement of one lobe of the thyroid. The autopsy revealed the following condition of the inferior cervical ganglion on the left side, on which the production of sweat was greatest: it was beset with roundish bodies like grains of sand, visible to the naked eye, resolving themselves under the micro-

scope into cavities, with a well-marked endothelium, and filled with blood-cells; the ganglion-cells were strongly pigmented, but of the normal size. The same ganglion on the right was unaffected. He considers that in this case the fibres of the sympathetic on the left side underwent temporary paresis, and thus increased blood-supply led to increased sweat-production.

Hardy, "Hyperhydrose localisée à la Plante des Pieds ou aux Paumes de la Main; considérations sur son traitement," 'Gaz. des Hôp.,' 1874, 745. Debrousse-Latour, "Des Sueurs locales," Paris, 1873, pp. 58. Chrestien, "Sur deux cas de Sueurs locales," 'Gaz. Hebd.,' 1873, 141. Dally, "Des Sueurs locales," ib. 155. Foot, "Chromidrosis," 'Dubl. Journ.,' 1873, lvi, 511. T. Fox, "Dysidrosis," 'Brit. Med. Journ.,' 1873, ii, 365. Emminghaus, "Ueber Epileptoide Schweisse" (paroxysms of perspiration with slight vertigo in woman, æt. 46, and youth, æt. 19), 'Arch. f. Psych.,' 1874, iv, 574.

### *Parasitic Skin Diseases.*

Dyce Duckworth ('Brit. Med. Journ.,' 1873, ii, 515) asserts that the presence of a parasitic disease of the scalp may be demonstrated by the application of a few drops of chloroform to the affected part. On evaporation the diseased hairs are seen to become of a yellowish-white colour, opaque, and like fine filaments of a vegetable lichen. The healthy hairs are quite uninfluenced. The skin in the immediate neighbourhood shows the same reaction. He believes the effect to be due to débris of the parasite mixed up with the sebaceo-epithelial matter extruded from the hair-follicles. Ether by itself gives no result.

The same writer ('Clin. Soc. Trans.,' vii, 157) records the occurrence of favus of the scalp in a child, æt. 12 months; there was no similar case in the house, and the only cat kept was free from the affection. This was the sixth case which had come under the author's observation during the last four years. Of these, four were instances of favus of the body, three of them in the persons of two brothers and a sister. The disorder seems to be extremely rare in London, and in England generally, though much more common in Edinburgh and Glasgow: of about 5000 cases of skin disease seen during the last four years at St. Bartholomew's Hospital six only were cases of favus; whilst in Glasgow there were 156 in 10,000 dispensary cases.

Ignorio de Avallar ('Gaz. Méd.,' 1873, 562) gives the case of a boy of 12 years, who had been affected with favus over his whole body for eight years. For four years he was in hospital, without any transmission of the disease to other persons, though he was in close communication with them, and several times slept in the beds of some of them.

Lanceraux ('Union Med.,' xvii, 969) laid before the Société Médicale des Hôpitaux three cases in which herpes circinatus had been caught from a cat, and mentions incidentally another. In the discussion which followed Besnier remarked that he had frequently observed the occurrence of the affection on the back of the hands and the forearm of butchers, especially those engaged in the flaying of calves, these animals being very subject to herpes circinatus. He and Bergeron find from statistics that favus is most common among country people, while herpes tonsurans occurs most frequently among in-

habitants of towns: of 100 Parisians 95 presented the latter, and only 5 the former affection, almost all who did have it coming out of the country. It was generally agreed that favus is rarely transmissible from one human being to another.

Horand ('Lyon. Med.,' xiv, 165) showed to the Société des Sciences Médicales at Lyons a girl, æt. 15, who had contracted favus from a cat; it affected the outside of the wrist, the back of the hand, and the clavicular region of the left side, and the upper and anterior portion of the right arm. There seems to have been some difference of opinion as to whether the disease was favus or herpes circinatus, which was settled by microscopical examination in favour of the former. Another person in the same house exhibited the same eruption; and the source of contagion was traced to a cat of two months old, covered with scabs, which had probably taken it from a cat said to be in the same condition. Horand adds another set of cases in which a husband and wife caught favus from a rat.

Conche (ib., 489) showed to the same society a rat on which the favus eruption had been "spontaneously developed."

Simon ('Arch. f. Derm.,' v, 303) also continues further observations on the occurrence of the same affection in mice.

Bouchut, "Herpès circiné ulcéreux; Diphthérie cutanée consécutive; Mort," 'Gaz. des Hôp.,' 1873, 722. Horand, "Herpès tonsurans," 'Lyon Méd.,' xv, 234. Fayrer, "India Ringworm and its treatment by Goa Powder," 'Med. Times and Gaz.,' 1874, ii, 470. T. Fox, "On Tokelau Ringworm and its Fungus" (with engravings), 'Lancet,' 1874, ii, 304. Cane, "Cases of Ringworm treated by Oleate of Mercury," ib., 1873, i, 227. Gee, "The Treatment of Tinea Tonsurans," ib., 1874, i, 318. Liveing, "Remarks on Alopecia Areata and Tinea Tonsurans," 'Med. Times and Gaz.,' 1874, ii, 601. T. Fox, on same, ib. ib., 630. Malassez, "Note sur le Champignon de la Pelade," 'Arch. de Phys.,' 1874, 203. Bradley, "Treatment of Dermophyta," 'Lancet,' 1873, ii, 28. T. Fox, "Clinical Lecture on Tinea Sycosis," ib. ib., ii, 141. Id., "Case of Parasitic Sycosis," 'Clin. Soc. Trans.,' vii, 1. Fabre, "Des Mélanodermies, et au particulier d'une Mélanodermie parasitaire," 'Gaz. des Hôp.,' 1873, 299. Sparks, "On a Disease of the Skin caused by Acarus Folliculorum, illustrated by cases observed in the Dog," 'Med. Chir. Trans.,' lvii, 239. T. Fox, "Scabies in private practice," 'Lancet,' 1874, i, 618. Id., "The Diagnostic Sign of Phthiriasis," ib., 1873, ii, 902.

## *Affections of the Hair, &c.*

Pincus ("Ueber plötzliches Ergrauen der Haare," 'Deut. Klin.,' 1873, 9) publishes two cases, written down for him at his own request, of sudden change in the colour of the human hair to grey. The first is that of a Dr. M., in Berlin, who had sent his wife and daughter to Salzbrunn, and in the first letter which brought him any news of them learnt the death of the latter. Only a few hairs kept their original brown colour. The second case was that of a young man, between 30 and 35 years of age, who plunged into the water to save a child, and on bringing it to shore dead recognised it as his own; his hair immediately turned grey and remained so.

Gaskoin, "Alopecia; Vitiligo," 'Brit. Med. Journ.,' 1873, i, 642. Goodhart, "On Follicular Disease of the Scalp," 'Guy's Hosp. Rep.,' xviii, 221.

## II. New Growths.

### *General Papers.*

The occurrence of local tumours has been noticed as far as possible under the different organs. The following papers are either concerned with the development and spread of various new growths, malignant, or otherwise, or contain accounts of interesting cases which could scarcely be referred to any particular region or organ.

G. Herrenkohl ('Wucherungen der Endothelien bei Pathologischen Neubildungen,' Bonn, 1873, pp. 27) has paid special attention to the growth of the endothelial cells covering the trabeculæ of the peritoneum, in two cases of miliary tuberculosis, and three of infective peritonitis. Through increase in the generally scanty protoplasm followed by division of nuclei and nucleoli, giant-cells were produced, each of which became divided into two smaller, many-nucleated cells. So far as his two cases seem to prove, the origin of tubercle is in the growth of these endothelial cells alone, while he leaves as an open question the share these latter take in the production of pus-cells and peritoneal adhesions. While emigrated leucocytes are engaged in the process of suppuration, it is impossible that they are concerned in the development of tubercle, which is found on those trabeculæ only which are destitute of blood-vessels.

G. Bizzozero ("Beitrag zur Kenntniss des Baues des Epithelioms;" 'Wien. Med Journ.,' 1873, 121) found, in a case of epithelioma of the cheek, a close relation between the cell-nests and the blood-vessels, together with collections of amœboid corpuscles between the masses of cells. The connective-tissue stroma which enclosed the epithelial cells formed a network with wide meshes, the cells lying along the trabeculæ being arranged vertically between the irregularly disposed "serrated" and "ridged cells. Fresh-boiled specimens showed numerous amœboid cells strewn among them, which in hardened specimens treated with carmine revealed the same number of nuclei as ordinary wandering-cells. No development of amœboid into epithelial cells was observed. These hardened preparations also showed, between the aggregations of cells and the connective-tissue sheaths, lacunæ analogous to those of certain lymph-glands, the walls of which were clothed with a layer of nucleated endothelial cells, containing rolls of red blood-cells, evidently dilated venous channels.

Vajda ("Ueber Entstehung des Epthelialkrebses und Regeneration des Epithels im Allgemeinen," 'Centralbl.,' 1873, 385), in a preliminary notice, gives his reasons for holding that the walls of the blood-vessels are the starting-point of the epithelial cancer. He classifies the results of his observations as follows:—1. A vascular system of very fine calibre is the first origin of all epithelial new growths, the elements of which stand in the closest relation to the cell-nuclei of the vessel walls from which they are produced. 2. An endogenous development of nuclei goes on in the nuclei of the wall, or less frequently in the epithelial cells which are in direct connection with the blood-vessels, the cells being completed by the building up round the new nuclei of the proto- or, as would be more correct to say in this

case, the deutero-plasma. 3. The new epithelial cells thus produced remain for some time in continuity, or at least in contiguity, with their vessels, so that their position is at first tangential, then more vertical to the latter. 4. If the further conditions for development and activity do not occur, the masses of newly formed cells undergo retrograde metamorphosis. The last sign of a past activity is the presence of serrated and ridged cells (epithelioma of the tongue and penis). The retrograde metamorphosis shows itself as "mucoid" degeneration (cancer of the mucous membranes); fatty degeneration (cancer of the lips, vulva, &c.); or horny change in the new elements (cancer of the limbs, &c.). After fatty change there may be seen a network of denuded vessels without wall-nuclei, with the débris of the newly formed cells. 5. Clinical observations show that in parts affected with cancerous changes numerous white cells occur, endowed with lively movement, and revealing, on the warm stage, processes, though not changing place to any large extent. 6. These epithelial changes have a tendency to spread in places when the vessel which is the starting-point of the affection is seated in loose connective tissue, or when the surrounding areolar tissues have been relaxed by previous inflammation. The writer concludes the paper with a comparative survey of the physiological relation between blood-vessels and epithelium; remarking that there are physiological epithelial cells which are analogous to endothelium (lung-alveoli, Malpighian bodies); that epithelial cells possess activity only when they are in direct communication with a vessel; and that a certain analogy exists between epithelium and lymph-cells.

C. Weil ('Wien. Med. Jahrb.,' 1873, 285), in opposition to the view that the development of cancer and its elements begins in the epithelium of glands, attempts to show that in cases of cancer of striated muscle the cancer-cells are produced from the real muscular substance within the sarcolemma. He holds that the process consists in a proliferation of the nuclei of the muscle and an increase in the masses of protoplasm; the contractile substance is altered in structure, looses its striæ, and becomes like young protoplasm, which is developed at last into various large epithelial-like cell-growths containing one or several nuclei. Bodies resembling red blood-cells also occur within the muscle-substance.

A. A. Sokolow ('Virch. Arch.,' lvii, 331) writes on the development of sarcoma in muscle; he gives (p. 329) three cases of spindle-celled sarcoma in women, æt. 30, 17, and 62 years, and concludes from his investigations that the cells of the muscular tissue are directly developed into those of sarcomatous tissue; that only a few of the muscle-cells undergo this change, the larger number becoming simply atrophied; and that the active changes in the muscles found in cases of sarcoma are secondary, not primary. Drawings of the microsopical appearances found are given.

H. Tillmanns ("Histologische Beiträge zur Lehre von den Sarcomen und den metastatischen Tumoren," 'Arch. d. Heilk.,' xiv, 530) gives a minute description of two sarcomatous tumours originating in the walls of blood-vessels. In the first case the tumour had grown to the size of a man's head in the calf of one leg, which had consequently been ampu-

tated. The patient died soon after the operation, and numerous nodules, of different sizes, agreeing microscopically with the original growth, were found in the lungs. The same microscopical appearances were found also in a thrombus in the femoral vein of the affected side, and embolic patches of the same character plugged several small vessels in the lungs. In the second case the tumour was removed after existing for twenty-five years in the neck. The cell-growth found the writer refers to a proliferation of the cells of the capillary endothelium (endothelioma).

C. J. Eberth ("Ueber die embolische Verbreitung der Melanosarkome," 'Virch. Arch.,' lviii, 58) gives a case illustrating the extension of tumours by means of embolism. After sketching the outlines of some recorded cases, he gives the history and autopsy of a patient who since boyhood had suffered from "inflamed eyes." Later the left eye was removed, for melano-sarcoma, originating probably in the choroid. About a year and a half after this he had symptoms of tumour in the liver and great emaciation, and died in two months' time. The autopsy showed extreme enlargement of the liver due to melano-sarcoma, pigmented cells of which were present in recent clots in the portal and splenic veins, in the glomeruli and capillaries of the kidneys, as well as about the original seat of mischief.

Acker, "Zur Pathologie der Geschwulst-Metastasen," Leipzig, 1873, pp. 37. F. Steudener, "Beiträge zur Onkologie" (with plate), 'Virch. Arch.,' lix, 413. Grawitz, "Zwei seltene Geschwulstfälle nebst Beobachtungen über die Contractilität von Geschwulstzellen," Berlin, 1873. Wendt, "Ueber ein Endotheliales Cholesteatom des Trommelfells nebst Bemerkungen zur Histologie der Eigenschicht," 'Arch. d. Heilk.,' xiv, 551. Langhans, "Zur pathologischen Histologie der Weiblichen Brustdrüse," 'Virch. Arch.,' lviii, 132. Stich, "Beitrag zur Lehre von den Geschwulsten," 'Berl. Klin. Woch.,' 1873, 557. Meyer, "Ein neues Verfahren behufs Verkleinerung von Drüsengeschwülsten durch den electrischen Strom.," ib. 1874, 111. Moxon, "On the Pathological Nature of Tumours," 'Guy's Hosp. Rep.,' xviii, 247. S. Wilks, "The Pathology of Cancer," 'Brit. Med. Journ.,' 1874, i, 573. Savory, "Observations on the Structure of Tumours, in relation to their Character and Clinical History," ib., 1874, ii, 761.

### *Glioma.*

T. Simon ("Das Spinnenzellen- und Pinselzellen-gliom," 'Virch. Arch.,' lxi, 90) describes two tumours, the first of which, the size of a fist, was seated in one cerebral hemisphere, the second in the left ventricle. Both consisted of cells without any recognisable intercellular substance, the cells themselves being peculiarly shaped. In the first case they were three times the size of white blood-corpuscles, contained nuclei with two nucleoli, and had on all sides processes ("spider cells") resembling fine fibrillæ with a remarkably dark, sharp, wavy outline, unbranched, and sometimes twisted sharply on themselves. The processes of the several cells were interlaced with one another, and gave the resemblance of a fibrillar intercellular substance. The cells in the second tumour were not precisely similar. Some were round with several large round nuclei and many nucleoli, and short processes on all sides, so far resembling serrated and ridged cells, others were almost triangular, with well-marked outline, and countless fine fibrillæ attached along the base. The apex of the triangle was pro-

longed into a broad sharply defined handle, homogeneous, like the body of the cell, of a slightly yellowish colour, and not branching. To these bodies he gives the name of "brush-cells." In this case, like the other, the interwoven fibrillæ gave the appearance of an intercellular substance.

*Angioma.*

A. Thierfelder ('Arch. d. Heilk.,' xiv, 83) writes on two cases of multiple angiomata occurring in the small intestine. The first is that of a man, æt. 48, engaged in a spirit distillery, and very probably a hard drinker, who died from an injury caused by machinery. In the submucous tissue of the jejunum and upper portion of the ileum were found about 70 bluish tumours, each about the size of a pea, which at first sight appeared to be varices, but the blood could not be forced out by pressure, except with the result of extravasation. The second case is that of a man, æt. 35, who had died of smallpox. Here again the lower portion of the jejunum and the whole of the ileum contained about thirty tumours of the same kind as in the first case. The microscopic appearances found in both were similar. Sections made parallel with the long axis of the intestine showed them to be made up of the lumina of from five to eight vessels, containing no muscle-cells in their walls, separated by but little intervening tissue, and possessing no defined capsule. The arteries and veins adjoining them were of normal calibre; and the writer concludes that these tumours consisted of dilated capillaries.

*Pituitary Growth.*

J. Arnold gives ('Virch. Arch.,' lvii, 172) the history and microscopical examination of a case in which there was a tumour of the pituitary body. The patient was a man, æt. 32, who after some festive occasion was attacked with intense headache, vomiting, and delirium. All the symptoms pointed at first to a severe indigestion, but next day there was ptosis of the right eyelid, the pulse was very slow, and the patient was unable to answer any question put to him, while his urine was passed involuntarily. Symptoms of meningitis supervened, and he died three days later. No trace of meningeal or cerebral inflammation was visible post mortem, but there was found an oval tumour the size of a pigeon's egg, half of which filled the pituitary fossa, the other half extending to the tuber cinereum. The optic commissure was flattened, the right middle cerebral artery completely bloodless, the left turgid. Microscopic examination of the tumour, hardened in alcohol, revealed simple hyperplasia of the pituitary body. It was enclosed in a connective-tissue capsule with numerous dilated vessels. The microscopic appearances are given in full in the text, and illustrated by plates.

*Sarcoma.*

J. Arnold gives ('Virch. Arch.,' lvii, 297) three cases of primary sarcoma of the skull. The first—periosteal—occurred in a boy aged 4 years, the other two—medullary—in men aged 49 and 51. The histories and autopsies are given in full. In comparing the three cases he notices the tendency to ossification shown in the first, as well as the

fact that, dense and hard at first, the growth became more soft and juicy, when it burst into a cavity. In the second case numerous tumours were seated in the diploë, which, destroying portions of the bone, divided it into a series of plates connected loosely with one another. There were similar tumours in the ribs, vertebræ, and sacrum, and secondary ones in the liver, spleen, and cervical glands. In the third case the new growth seems to have commenced in the "os tribasilare" (basilar portions of occipital and sphenoid bones) and the upper cervical vertebræ; and tumours of the same nature were found in the ribs, but not in the viscera. Drawings of the skull in the first, and of the vertebræ in the second case, accompany the paper.

J. Zahn gives ('Arch. d. Heilk.,' xv, 143) the microscopical characters of a tumour which was situated on the right side of the neck of a man, æt. 35, which had been very rapid in its growth. It was about the size of a child's head, somewhat soft in consistence, of a greenish-yellow colour, and was made of several portions, each the size of a hen's egg. These were separated from one another by capsules of thick connective tissue, broad trabeculæ of which ran into the interior of the tumours. In parts the tumours were homogeneous, in parts their structure was alveolar, and from the latter could be pressed out masses of cells like those of obstructed sebaceous glands (comedones). Microscopic examination showed that there had been a hyperplasia of the lymphatic tissue, and that in the process the trabeculæ of the stroma had undergone granular change and disappeared, that the cells had lost their nuclei and become developed into peculiar masses, in which again were seen nucleated cells in a firmly granular protoplasm. In the most highly developed portions of the tumour these cells composed the comedo-like masses which lay within the cancroid alveoli; they were membrane-less, larger than lymph-corpuscles, mostly spindle-shaped, their nuclei were oval and sharply defined, and contained clear shining nucleoli. It is supposed that the primary step here was not a development of these cells, but of the stroma, which was found first in the region of the flake-like masses, and that this fact essentially separates the new growth from the carcinomata. The blood-vessels of the lymph-follicles had disappeared with them, but new ones had been formed in the new alveolar stroma. The cells in the older part of the tumour had undergone partly colloid and partly fatty degeneration. Reserving the term carcinoma for new growths originating in epithelial structures, the author gives to this, which sprang from the cervical lymph-glands, and belongs to the series of connective tissues, the name of Sarcoma alveolare epitheloides.

Duret, "Note sur un cas de sarcome, développé sur un nævus pigmentaire; aspect carcinomateux d'une partie de la Tumeur" (with plate), 'Arch. de Phys.,' v, 319. Fritze, "Hartes Spindelzellensarcome von Metacarpus des Daumens," 'Virch. Arch.,' lvii, 294. Kapuscinski, "Retroperitonäal Sarcome" (two cases, in woman and man, commencing probably in one kidney), Berlin, 1873. Buch, "Ein Fall von multipler primärer Sarcomatose des Knochenmarks und eine eigenthümliche Affection der vier grosser Gelenke" (with plates), Halle, 1873. Peikert, "Ueber Knochensarcome," Berlin, 1873. Liouville, "Cas de sarcome généralisé des séreuses chez un rat" (cancerous masses in peritoneum, pleuræ, pericardium; hæmorrhagic pleurisy and peritonitis; pericarditis; cysticercus in peritoneum), 'Arch. de Phys.,' v, 206. Shepherd,

"Sarcoma in the Rat," 'Brit. Med. Journ.,' 1873, i, 728. Jaffé, "Zur Kenntniss der gefässreichen Sarcome," 'Arch. f. Klin. Chir.,' 1874, xvii, 91. Gay, "Adenoid or spindle-celled Sarcoma," 'Path. Soc. Trans.,' xxv, 233. Butlin, "Recurrent ossifying spindle-celled Sarcoma from the subcutaneous tissue of the thigh," ib., xxiv, 211.

### *Lymphosarcoma, &c.*

R. Schulz writes ('Arch. d. Heilk.,' xv, 193) on "Desmoid-carcinoma." By this term he understands a malignant "atypical connective-tissue new growth" in opposition to epithelial-carcinoma as an "atypical new growth," and under it he includes all growths which have been described as lymphosarcoma, malignant lymphosarcoma, lymphadenoma, pseudoleuchæmic tumours, &c. He gives the literature of the subject and the results of seven cases, with a minute account of the seat and course of the affection. He points out that these growths are essentially connective-tissue growths, spreading only in the interstitial tissue of organs, while the epithelial portions—as for instance the liver-cells, the epithelium of the testis, &c.—take no part in this new formation, but are destroyed. He distinguishes the hard and soft varieties, the former having been fully described by Langhans. The affection rapidly leads to death by cachexia, usually in two years, one case only living for three and a half years. In conclusion he expresses the opinion that leuchæmia may depend upon a chronic desmoid carcinoma of the spleen.

The following papers refer to various other forms of new growths :

Rosenstirn, "Ein Beitrag zur Histologie und Entwickelung des Fibroms der Mamma," 'Virch. Arch.,' lvii, 163. Arnold, "Zwei Osteome der Stirnhöhlen," ib. ib., 145. Sonnenschein, "Ein Fall von Multipler Exostosis cartilaginea," Berlin, 1873. Poore, "Hereditary Exostoses," 'Lancet,' 1873, ii, 771. Godlee, "Small loose ossifying enchondromata in the neighbourhood of a pedunculated exostosis of the tibia," 'Path. Soc. Trans.,' xxv, 226. Sokolow, "Myoma lævicellulare (Leiomyoma) der rechten Brustwarze," 'Virch. Arch.,' lviii, 316. Leriche, "Tumeur de la cloison nasale, enlevée par mobilisation de la sous-cloison" (myxoma), 'Gaz. Méd.,' 1874, 73. Sattler, "Ueber die sogenannten Cylindrome und deren Stellung im onkologischen Systeme," Berlin, 1874, pp. 100 (with five plates). Brösike, "Zur Casuistik der Kystome," Berlin, 1874, pp. 43. Wollfberg, "Ueber die Entwickelung des vernarbenden Brustdrüsenkrebses," 'Virch. Arch.,' lxi, 241 (with plate). D'Espine, "Contribution à l'étude du développement du carcinome de la mamelle," 'Arch. de Phys.,' 1874, 177. "Carcinomes généralisés," 'Gaz. des Hôp.,' 1874, 49. Bollinger, "Ueber Epithelioma contagiosum beim Haushuhn und die sogenannten Pocken des Geflügels" (with plate), 'Virch. Arch.,' lviii, 349. Cadiat, "Du développement des tumeurs cystiques du sein" (with plates), 'Journ. de l'Anat.,' x, 183. Moxon, "Curious mode of cyst formation in (lymphomatous) cancer of ovaries," 'Path. Soc. Trans.,' xxiv, 163. Mourlon, "Contribution à l'histoire des kystes osseux," 'Gaz. des Hôp.,' 1874, 25. v. d. Porten, "Untersuchungen über Teratome der Gans," Berlin, 1873, pp. 32.

## I. Climate, Health-Resorts, Baths, &c.

J. Fayrer, writing "On Certain Physical Causes that Influence the Climate and Public Health of India" ('Lancet,' 1874, ii. 10), reviews shortly a work by Corbett, "On the Climate and Resources of Upper India." The latter writer asserts and proves inferentially that the

climate and physical conditions of that country have undergone material changes during a recent period; that it has become hotter and drier than in former years, and, consequently, the health of the people and the productiveness of the soil have deteriorated; and that these important changes are due, not to natural, but to induced causes:—(1) Increased surface drainage; (2) defective agriculture; (3) denudation of the surface of the country of trees and other vegetation; (4) above all, to artificial irrigation by canals. With regard to the first three points the reviewer thinks he is scientifically correct and borne out by facts, but he is inclined to attribute some of the evil consequences assigned to irrigation rather to an imperfect application of the principle than to the system itself. The reviewer refers to the light thrown by the author on the etiology of the endemic malarious fever which for some time has been devastating parts of Lower Bengal, inasmuch as, to some extent at any rate, the increased surface drainage in Upper India may have caused an overdue supply of water, and consequently a waterlogged and malarious state of part of Bengal.

L. Lehmann ("40 Badetage; eine vergleichend balneologische Studie," 'Virch. Arch.,' lviii, 92) has made a comparison of the effect of various forms of baths upon the different secretions and the functions of respiration and circulation. The results, in a tabular form, include the quantity of exhaled air, the amount of carbonic acid in it, the temperature in the axilla, and the frequency of pulse and respiration while in and after the bath, and the hourly amount of urine passed before and after the bath. The following are his chief conclusions:—The production of cutaneous redness is a certain means in classifying (für Gruppirung) baths. Consequently, the cold hip-bath and the hot bath belong to the same group. Baths of this kind act upon the retardation of respiration and circulation, and cause increase of arterial pressure, and in consequence of the secretions, especially the expired air and its contained carbonic acid; they do not, however, cause an increase in the quantity of urine, as the ordinary bath does, a fact pointed out by the author in 1856. The increase of carbonic acid after cold baths is not the result of increased combustion, but of increased arterial pressure, to which cause is also due the greater amount of urine excreted. The ordinary bath acts best as a diuretic, the hot bath as a quickener of respiration. After the ordinary bath, but not after the hot bath, the patient is conscious of peripheral cooling. In conclusion, attention is drawn to the various capabilities of baths, and their analogy to electric currents.

Various writers (Caspari, Bode, Bertraud, Fleckles, Göschen, Kisch, and others), writing in the 'Deut. Klinik' and 'Allgemein. Wien. Med. Zeitung,' give statistics of the number of patients attending the baths of Carlsbad, Marienbad, Meinberg, Nauheim, Teplitz, &c., and the number of baths taken, with, in some of the papers, dissertations on the employment of certain waters in certain cases. These, with other facts of no greater importance, make up papers bearing a strong resemblance to the advertisements special to each watering place. The latter noticed to some extent below, would swell the annexed bibliography to a happily impossible length.

H. Reimer, 'Klimatische Winterkurorte,' Berlin, 1873. Beneke, "Zur Lehre von der differenz der Wirkung der Seeluft und der Gebirgsluft," 'Deut. Arch.,' xiii, 80. Knauthe, "Zur Behandlung der Scrophulose mit Klimatischen Kuren," 'Jahrb. f. Kinderheilk.,' vi, 271. A. H. Smith, 'The Effects of High Atmospheric Pressure, including the Caisson Disease,' Brooklyn, 1873, pp. 53. Heinemann, "Bericht uber die in Vera Cruz wahrend der letzten sechs Jahre beobachteten Krankheiten," 'Virch. Arch.,' lviii, 161. Arnould, "Des Affections climatiques et de l'élément climatique dans les fièvres de Malaria," 'Arch. Gén.,' xviii, 385. Rohden, "Klimatische Kurorte und Schwindsuchtshospitäler in Süd-England," 'Arch. d. Heilk,' xiv, 369. D'Hercourt, "Examen critique de l'influence que le séjour sur le littoral Franco-Italien exerce sur le marche de la Phthisie pulmonaire," 'Gaz. des Hôp.,' 1874, 579. Thomas, 'Beitrage zur allegemeinen Klimatologie, und Mittheilungen über Caddenabbia, Lugano, Spezia, als Klimatische Kurorte,' Erlangen, 1873. E. S. Thompson, "On the elevated Health Resorts of the Southern Hemisphere, with special reference to South Africa," 'Med.-Chir. Trans.,' lvi, 285. Tothill, 'Notes on the Climate of Algiers,' London, 1874, pp. 16. "The Sanitarium of South Africa," 'Lancet,' 1873, i, 153. Furstenberg, "Cairo and its Climate," ib. ib., 46 (and see ib. ib., 116). Leared, "Tangier as a Winter Resort for Invalids," 1873, i, 9, 75; ii, 491. Id., "Mogador as a Winter Resort for Invalids," ib. ib., ii, 588. Wetherall, "The Climate of Australia," ib. ib., 474. Yeo, "Further Observations on the Engadine as a Health Resort," ib. ib., i, 838. Macpherson, "Notes of Visits to Foreign Baths: the Kniebis Baths," ib. ib., ii, 294; "Badenweiler," ib. ib., 412. Dettweiller, "Die Rationelle Therapie der Lungenschwindsucht in Görbersdorf," 'Berl. Klin. Woch.,' 1873, 357. Berg, "Klimatologische Studien in Bad Reinerz," ib., 214. Danzer, "Der junge Kurort Sangerberg bei Marienbad," ib., 334. De Gouvenain, "Recherches sur la Composition chimique des Eaux thermominérales de Vichy, de Bourbon-l'Archambault, et de Néris (Allier), au point de vue des substances habituellement contenues en petite quantité dans les eaux," 'Compt. Rend.,' lxxvi, 1063. Ziurek, "Die Mineralquellen des Alexandrinenbades in Frienwalde," 'Deut. Klin.,' 1873, 188. Garrigou, "Sur les Eaux de St. Boès," 'Union Méd.,' xvi, 264. Bordes-Pagès, 'Du traitement des Maladies syphilitiques par les Eaux minérales d'Aulus (Ariége),' Brussels, 1874, pp. 34. Delhaes, "Die Therapeutische Bedeutung der Teplitzer Thermen bei Syphilitischen Krankheitsformen," 'Berl. Klin. Woch.,' 1873, 237. Gaetschenberger, "Kissingen als Soolbad," ib., 416. Kornick, 'Die Heilwirkung der Bäder in Karlsbad, &c.,' Karlsbad, 1873. Magdeburg, 'Die Thermen zu Wiesbaden, &c.; nebst einer Abhandlung uber die Wirkung der Mineralquellen in Allgemeinen,' Wiesbaden, 1873, pp. 152. Pacher, 'Das Bad Levico im Trientinischen und Berichten über die Badesaison des Jahres 1872,' Vienna, 1873, pp. 60. Sauerwald, 'Bad Oeynhausen f. Kurgäste, &c.,' Berlin, 1873, pp. 72. Cuffe, "Cases successfully treated at Woodhall Spa, Horncastle," 'Brit. Med. Journ.,' 1873, i, 534. Peters, 'Vorschlag einer systematischen Methode zur Untersuchung der physiologischen Wirkung der kalten, lauen, und warmen Wasserbäder," 'Arch. d. Heilk.,' xiv, 404. Bunge, "Ueber die Bedeutung des Kochsalzes und das Verhalten der Kalisalze im menschlichen Organismus," 'Zeits. f. Biol.,' ix, 105.

The following Errata, in addition to those already noticed, occur in the last Biennial Report on Medicine (see page 192 of that Report):—

Page 61, line 11 from bottom, *read* "Lombard."
„ 73, „ 26 „ top, *read* "Clinical."
„ 83, „ 16 „ bottom, *for* "Neoroses" *read* "Névroses."
„ 115, „ 25 „ top, *for* "traitment" *read* "traitement."
„ 117, Leyden's paper on "Bronchial Asthma" may be found also in 'Virch. Arch.,' liv.
„ 125, line 20 from top, *for* "are" *read* "is."
„ 131, „ 3 „ top, *read* "Presystolic."
„ 135, „ 23 „ bottom, *read* "Gray."
„ 149, „ 12 „ „ *for* "when" *read* "where."
„ 151, „ 13 „ top; *read* "Domville."
„ 152, „ 3 „ „ *for* "Lyon" *read* "Lyons."
„ 166, „ 2 „ bottom, *for* "xii" *read* "xxii."
„ 188, top line, *read* "rather than, with."
„ lines 18 and 36 from top, *dele* "Virch. Arch."
„ line 4 from bottom, *for* "du" read "der."
„ 189, „ 20 „ top, *for* "ib." *read* "Virch. Arch."
„ 199, „ 14 „ „ *for* "ib." *read* "Lancet."

I cannot close these sheets without acknowledging the great assistance I have received in this and in the two preceding Reports on Medicine from my friend Dr. Pye-Smith, who has corrected not only ordinary errors, but mistakes of a more serious character.—A. B. S.

# REPORT ON SURGERY.

BY

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*Recovery after apparent death induced by the inhalation of chloroform.*—Sir John Rose Cormack narrates the case of a woman, æt. 27, whose pulse and respiration almost ceased after inhalation of chloroform, and who seemed on the point of death. Inversion of the body was practised, and she was kept in this position four or five minutes. She was then placed horizontally. Before long her state again gave rise to alarm. The inversion had to be tried twice subsequently, each time with a good result. Artificial respiration was kept-up for a long time. She finally recovered.

Dr. Marion Sims records a very similar case. The lady had taken chloroform once without ill effect. On the second occasion very alarming symptoms came on. The body was inverted, and this position was maintained for fifteen minutes or more. When the horizontal position was again resumed the symptoms recurred, and inversion was practised twice subsequently before recovery was permanent. Dr. Sims also mentions a second case in which inversion was successful in restoring a patient. ('Brit. Med. Journ.,' August 22, 1874.)

*Methylene ether as an anæsthetic.*—Mr. Lawson Tait speaks highly of the use of methylene ether as being unattended with sickness (comparatively), and requiring a smaller quantity than sulphuric ether. ('Brit. Med. Journ.,' March 8, 1873.)

*The administration of ether in America.*—An account by Mr. Tomes of the method, &c., of administering ether in America is given in the 'Brit. Med. Journ.,' March 15, 1873.

*Death from ether.*—A letter from Dr. Bigelow on the case of alleged death from ether at the South Hants Infirmary is given in the 'Brit. Med. Journ.,' Dec. 13, 1873. He thinks the attempts at resuscitation produced asphyxia in a partially narcotised lad. The stimulation adopted (flogging) led to muscular exertion which expended his remaining strength.

*Death in coma after the use of ether, with remarks on the choice of anæsthetics.*—Mr. Hutchinson, in a clinical lecture on the case of an old

gentleman who died in a comatose state continuing after the administration of ether, advises that chloroform should be given to very old people, and ether avoided. ('Brit. Med. Journ.,' March 8, 1873.)

*A new double current inhaler for administering ether.*—Mr. J. T. Clover describes and figures a new inhaler for administering ether. ('Brit. Med. Journ.,' March 15, 1873.)

*Anæsthetics.*—Mr. J. T. Clover makes some general remarks on the production of sleep during surgical operations, the anæsthetics at our disposal, and the means of administering them. ('Brit. Med. Journ.,' Feb. 14, 1874.)

*Aneurism of the vertebral artery.*—Mr. Holmes (Lectures, College of Surgeons) says there is no case of spontaneous aneurism of the vertebral on record. Traumatic aneurisms are not so very uncommon. There are eleven cases on record in which the carotid has been tied for wound or aneurism of the vertebral, of course with no advantage. He tabulates these cases. If pressure be applied as low as two inches above the clavicle, the carotid and vertebral may both be compressed. If pressure higher up does not stop the pulsation you may conclude that the vertebral is affected. The carotid tubercle (anterior tubercle of transverse process of sixth cervical vertebra) is higher than is generally supposed. It is two to three inches above the upper border of the clavicle. He sums up as follows:—(1) A traumatic aneurism may be taken to be vertebral when it is situated in the course of that vessel, and when its pulsations are not commanded by compression of the lower part of the common carotid. (2) When a traumatic aneurism is situated as above, and its pulsations are commanded, however completely, by pressure on the common carotid low in the neck, it ought not to be treated as being carotid, or as affecting a branch of the carotid, unless it is clearly proved that its pulsations are stopped by pressure applied above the level at which the vertebral ceases to be compressible—*i.e.* above Chassaignac's "carotid tubercle." (3) An aneurism diagnosed as vertebral may be treated by compression (gradual or rapid, as the case demands) of the root of the vertebral artery in the neck, if this is found feasible. (4) If indirect compression will not stop the pulsation, or if it cannot be borne, the tumour should be subjected to direct compression and refrigeration, to which internal remedies may be added, and possibly the subcutaneous injection of ergotine may be of use. (5) If these means fail, and the tumour appears likely to burst, or if it has burst, the sac should be opened with all due precaution and an attempt made to tie or plug the wounded artery. (6) A wound known or suspected to be of the vertebral artery should be treated either by direct pressure or by ligature of the vessel in the wound. ('Lancet,' July 26, 1873.)

*Orbital aneurism.*—Mr. Holmes (Lectures, College of Surgeons), after dealing with the subject in detail, sums up to the effect that Travers' original assumption that orbital aneurism is usually anastomotic has been conclusively refuted. Aneurisms by anastomosis sometimes affect the vessels of the orbit, but their symptoms are quite different from those of the disease now in question. It has been shown beyond denial that some of these aneurisms are of the arterio-venous

form, and he thinks it is probable that a great number of the successful cases on record were so. But it is equally impossible to deny that in others the aneurism has been of the ordinary circumscribed form. Finally, Mr. Holmes does not see how we can avoid admitting that in some instances the usual aneurismal symptoms have been produced by the pressure of enlarged and consolidated veins upon the arteries of the orbit. The character of the bruit is the main point in the diagnosis of the arterial from the arterio-venous form. A clear, intermittent, blowing murmur can hardly proceed from an arterio-venous communication, which, on the contrary, has a soft continuous murmur interrupted by the intermittent arterial whiz, and this latter is exaggerated occasionally, according to M. Delens, into a piping or whining sound. The difference in the bruit may suffice, then, in some well-marked cases to exclude the idea of ordinary arterial aneurism. The more important question is whether it is possible to recognise those cases in which no arterial disease whatever exists, and this is much more difficult. There are two cases on record in which it seemed impossible. Mere coagulation of blood in the cavernous sinus, without dilatation of veins in the orbit, will not cause the symptoms of orbital aneurism, as Knapp's cases of thrombosis of the cavernous sinus show; nor, Mr. Holmes believes, will mere dilatation of the veins of the orbit, unaccompanied by coagula in the sinus. At present, all we can say is that the symptoms of orbital aneurism are in some cases exactly imitated by cases in which only the venous system is affected. The transference of the disease from one side to the other is difficult to explain. In regard to treatment, if we admit that the symptoms may be caused by coagula in the sinus, or that the disease, of whatever character, may disappear spontaneously, we shall be loth to resort to ligature of the carotid. If we believe that many of these cases are of arterio-venous nature, we know that ligature at a distance is a very uncertain remedy. We know also that arterio-venous aneurisms (in the neck, &c.) do not necessarily involve any fatal symptoms. The operation of ligature of the carotid in these cases (viewed statistically) is, however, very successful, only a few of the patients having died. The proportion in which the disease has been cured, however, is small. In a few cases a natural cure may result; in the majority it is necessary to do something. Not ligature of the carotid at once. Compression should be first tried. The injection of coagulating fluids into the tumour has been successful. Electro-puncture has failed. When we have tried other means without success, the ligature may be resorted to, if the exophthalmos, &c., be on the increase. ('Lancet,' Aug. 2 and 23, 1873.)

*Arterio-venous aneurism in the neck.*—Mr. Holmes (Lectures, College of Surgeons) sums up to the effect that traumatic arterio-venous aneurism in the neck, as far as published cases enable us to judge, does not usually prove fatal if let alone. ('Lancet,' Aug. 23, 1873.)

*Ligature of the external carotid.*—Dr. L. R. Longworth ('Archives of Scientific and Practical Medicine,' May, 1873) concludes that—1. Ligature of the common carotid is the widest in its application, but most dangerous and least efficient. 2. Ligature of the external carotid

below the digastric and stylo-hyoid muscles is more limited in its application, but less dangerous and more efficient. 3. That ligature of the external carotid above the diagastric and stylo-hyoid muscles is the most restricted in its application, but also safest and most effectual. 4. That ligature of the external carotid on both sides has hitherto been uniformly successful and is the most efficient measure at our command for arresting the distal circulation. ('Am. Journ. Med. Sci.,' Oct. 1873.)

*Hæmorrhage from the internal carotid successfully treated by ligature.*—Dr. M. B. Sands, in disarticulating the inferior maxilla, removed a portion of the external carotid artery. Both ends were tied and also a slit in the internal jugular vein. On the tenth day sudden hæmorrhage occurred, as was proved, from the internal carotid artery. It was checked at once by an assistant who happened to be at hand, and controlled till a ligature was placed on the common carotid. Finally, a clean cut ulceration was detected in the internal carotid and this was tied above and below. The patient recovered. ('New York Med. Journ.,' Jan. 1874; 'Am. Journ. Med. Sci.,' April, 1874.)

*Ligature of the external and internal carotids for hæmorrhage of the face and neck and into the mouth and fauces.*—Dr. Stephen Smith has on two occasions ligatured the external and internal carotid arteries just above the bifurcation of the common carotid for hæmorrhage from various points of the face and neck and into the mouth and fauces. In one case it was for cancer and in the other for gunshot injury. He thought to avoid renewal of the hæmorrhage better than by ligature of the common trunk. In neither case was there any return of the bleeding, the ligatures separated well, and the patients recovered. ('Am. Journ. Med. Sci.,' April, 1874.)

*Ulceration of the internal carotid artery following necrosis of the lower jaw.*—E. Schwartz relates in the 'Gazette des Hôpitaux' for May 7, 1874, the case of a man, aged 61, who had necrosis of the right angle of the lower jaw, with profuse and very fetid suppuration. One day profuse hæmorrhage took place from the cavity of the abscess, and was arrested by introducing a plug through the mouth; the next day it returned, and caused death. At the *post-mortem* examination the internal carotid artery was found to be exposed and infiltrated with ichorous pus; it presented anteriorly an oval aperture, a quarter of an inch long, about an inch and a half from the bifurcation of the common carotid.

*Hemiplegia from softening of the brain after ligature of the external and internal carotids.*—Dr. James Russell writes on this subject, quoting cases recorded in the 'Medical Times and Gazette,' March 14, April 4, 11, 25, May 2.

*Traumatic aneurism of internal maxillary (?) treated successfully by ligature of the carotid.*—Mr. Bowker records the case of a young man who had been stabbed in the neck and mouth a month before he came under care. In front of the left ear there was a soft and obscurely pulsating swelling, which also bulged inwards behind the last molar tooth and above and below the tonsil. It was manifestly a traumatic aneurism of a branch of the left internal carotid, probably a branch of the internal maxillary. A fortnight later, hæmorrhage occurred, but was stopped.

It recurred in another fortnight, and the carotid was then ligatured. The patient recovered well. A hempen ligature was used, and the dressing not changed for some days. The ligature separated on the eighteenth day. ('Lancet,' Oct. 11, 1873.)

*Aneurism of common carotid; ligature of lower part of artery; cure.*—Dr. Christopher Fleming records the case. ('Dub. Journ. Med. Sci.,' Aug. 1873.)

*Ligature of left carotid for aneurism of arch of aorta.*—In the last 'Retrospect,' there is a note of a man who was the subject of an aneurism of the arch of the aorta, for which ligature of the common carotid was resorted to by Mr. Heath, who records the case in vol. v of the 'Clin. Soc. Trans.' A note in the sixth volume states that the man has derived permanent benefit from the operation.

*Tumour of the neck; removal by elastic ligature; hæmorrhage; ligature of the common carotid; unhealed sinus; hæmorrhage in a few months; ligature again lower down; abscesses in cerebral hemisphere and in liver.*—The patient was a man, aged 31. Pyæmic symptoms appeared before the second ligature. ('Medical Times and Gazette,' Nov. 29, 1873.)

*Traumatic aneurism of neck; ligature of the common carotid with permanent silver wire ligature.*—Dr. R. W. Gibbes records the case. The wire was double and tied in a reef knot and the ends cut off short without having constricted the vessel sufficiently to divide either coat. When seen a year later the double constricting wire could not be felt, but the patient said he felt it when pressure was made. ('Charleston Med. Journ. and Review,' Jan. 1874, and 'Am. Journ. Med. Sci.,' July, 1874.)

*Incised throat; wound of internal jugular vein; ligature; recovery.*—Mr. John Woodman records the case of a woman whose throat was cut with a razor. A longitudinal wound was found in the left internal jugular vein, therefore at right angles to the wound in the skin. Great trouble was experienced in ligaturing the vein, owing to the hæmorrhage necessitating constant compression, but it was finally tied above and below the wound. ('Brit. Med. Journ.,' Oct. 18, 1873.)

*Telangiectasis of gum.*—Mr. James E. Adams records a case in which severe hæmorrhage occurred at intervals during six months from a tumour of the gum. The right upper molar had been removed two or three years previously. No special hæmorrhage occurred at the time. The patient was a young man (aged 20). A small plexiform nævus was found on examination on the surface of the gum between the second molar and the bicuspid tooth. A free application of the galvanic cautery arrested the hæmorrhage and destroyed the growth. ('Brit. Med. Journ.,' June 27, 1874.)

*Aneurism on the dorsum of the tongue.*—Mr. Gay records the case of a lady, aged 45, who came under his care for a pulsating swelling on the dorsum of the tongue near the tip. A small artery led to it, the tumour was cut out, and a portion of the tongue around it. ('Lancet,' Aug. 22, 1874.)

*Restraint of hæmorrhage during operations on the mouth.*—Prof. E. Andrews directs ether spray on the roof of the mouth, and thus checks

hæmorrhage during operations. ('Med. Examiner,' April, 1873, and 'Am. Journ. Med. Sci.,' July, 1874.)

*Aneurism of the axillary artery cured by indirect compression.*—M. Verneuil had under his care ('Gazette Hebdomadaire,' No. 12, 1873) a man suffering from aneurism in the left axilla; it had a diameter of about 3½ inches. The arm was first carried backwards, pronated and adducted, and fixed in this position to the thorax, and the pulsation was arrested, but the patient could not bear the position of the limb for any length of time. Digital compression of the subclavian artery (above the clavicle) was continued for twenty-four hours, but had to be given up, as the assistants became tired. A thick plaster of gypsum was now laid in the supraclavicular region, and digital compression was made through it until the plaster had hardened. From the model of the part thus obtained a leaden cast, weighing about 6½ lb., was made, and was used for compression, this being increased by means of a handle. The patient ultimately attached to the handle three bands, which were fastened to the bed in various directions and kept the mass of lead in its place. This plan succeeded completely, when the weight was increased to about 11 lb. The subclavian artery was compressed in this way for six or seven hours daily for about ten weeks, at the end of which time the size of the swelling had become reduced by nearly one half, and the pulsations had almost ceased. The patient was now dismissed from hospital, but continued to apply the compression at home during several hours daily for ten months. Several years later he reported that the cure was complete; the place of the aneurism was occupied by a hard mass of the size of a nut, which did not interfere with the usefulness of the arm.

*Axillary aneurism; compression; cure.*—The patient was a man, aged 71. The tumour had only been noticed one month. He was under the care of Mr. Erichsen. Compression was applied for twenty-five hours —digital compression for eleven hours and mechanical for fourteen. The treatment extended from June 23 to Aug. 12. ('Lancet,' Nov. 15, 1873.)

*Axillary aneurism; pressure on subclavian; cure.*—Mr. Cooper Forster records a case. Pressure was applied at intervals for three days with some benefit and then under chloroform with a key above the clavicle for 5½ hours with complete success. It was, however, continued three hours longer. ('Guy's Hospital Reports,' xviii, p. 61.)

*Ligature of the subclavian for axillary aneurism.*—Dr, A. H. Hughes ('Canada Lancet,' Feb. 1873) records a case in a man, aged 25, who had a tumour about the size of an orange in the axilla. The ligature came away on the twelfth day and the wound speedily healed. From this time for a period of eleven weeks no change whatever took place; no pulse could be felt at the wrist; the tumour was consolidated, but did not diminish in size; and as there was considerable pain in the hand, owing to the pressure of the indurated mass on the brachial nerves, causing restlessness and uneasy sleep, it was determined to get rid of the sac and its contents by inducing suppuration in it. For this purpose a trocar and canula were introduced and the mass of coagulated blood contained in the aneurismal sac was thoroughly broken up. This produced the

desired effect; suppuration ensued, a free exit was given for the pus; the tumour gradually diminished in size and the wound healed. At this time no pulsation could be detected in the radial artery. ('Am. Jour. Med. Sci.,' April, 1873.)

*Ligature of the subclavian artery for axillary aneurism.*—Mr. Stocks records a case. The patient was a man, aged 42. After the failure of prolonged attempts to effect a cure by pressure, the vessel was ligatured in its third part by a carbolised catgut ligature and the wound dressed antiseptically. The patient died on the twelfth day from asthenia with some solidification of one lung, though the pleura was uninjured by the operation. The point of special interest in the case is the fact that, though the artery was closely constricted above the aneurism and filled with a fibrinous plug, the ligature itself had disappeared entirely, thus furnishing another instance in proof of the value of carbolised catgut and the antiseptic treatment. The sac was wounded, but this did not have any ill effect. ('Liverpool and Manchester Med. and Surg. Rep.,' 1873, p. 126.)

*Axillary aneurism.*—Mr. Holmes (Lectures, College of Surgeons) sums up—1. That there are a great number of these aneurisms, both traumatic and spontaneous, which are amenable to gradual intermitting pressure when carefully applied to the artery above the tumour. 2. That in cases where this is not possible, from the pain which the patient experiences on pressure, the application of rapid total compression under anæsthesia may effect a cure. 3. That the ligature of the subclavian artery is so dangerous an operation, both from its own risks and from the proximity of the sac, that it ought to be restricted to cases where pressure has failed and to those in which, from the size and rapid growth of the axillary tumour, the surgeon thinks pressure unadvisable. 4. That the old operation is to be preferred to ligature of the subclavian in cases of ruptured artery, and that it may be practised in cases where, from the elevation of the shoulder or from the extent of the tumour, the surgeon would find it difficult to tie the subclavian or fears in doing so to injure the sac; but that the anatomical relations of axillary aneurisms render this a peculiar hazardous proceeding, and the surgeon should always be prepared to amputate if necessary. 5. That in very large axillary aneurisms, if any treatment be adopted, the arm should be amputated at the joint, after ligature of the subclavian.

*Attempted reduction of dislocation of the shoulder; rupture of the axillary artery; ligature; death.*—The patient was a man, aged 58, under the care of Mr. Lister. The dislocation was of seven or eight weeks' standing. Prof. Lister, by manipulation and subsequently by the pulleys, attempted to reduce the dislocation, no undue force being exerted by either method. During the attempt a sharp crack was heard and subsequently a swelling, which ultimately reached the size of an adult head, took place on the dorsal and posterior part of the scapula; the occurrence being due to rupture of the axillary artery and subsequent effusion of blood into the surrounding structures. Without hesitation Prof. Lister cut down on the spot and searched for the ruptured vessel. An aperture was found at the posterior part of the axillary. The patient rallied, but died about three hours later. Dissection

showed that the humerus had a little spicula of bone attached to its shaft which was the immediate cause of the rupture. The vessel itself was very atheromatous. The head of the bone had during the comparatively short period of seven weeks formed for itself a false glenoid cavity. It was instructive to note that this cavity was not only of cartilaginous texture, but even exhibited traces of osseous development. ('Med. Times and Gazette,' Feb. 1, 1873; and 'Edin. Med. Jour.,' March, 1873, p. 829.)

*Rupture of the axillary vein during efforts at reduction of a dislocation of six weeks' standing.*—Dr. D. H. Agnew reports the following case ('Phil. Med. Times,' Aug. 16, 1873). The patient was a female, aged 60. Steady and persevering extension was exerted for several minutes while an assistant's hand was held in the axilla to guide the head of the bone towards the glenoid cavity. A sudden, increasing swelling appeared over the right pectoral region, distending in an instant the entire breast, rendering it exceedingly prominent and forming a firm, but fluctuating tumour. The patient instantly became cold and collapsed; respiration ceased and the pulse could not be felt. The subclavian was compressed, the tongue drawn forwards, and cold douches, ammonia, artificial respiration, &c., tried. She rallied, and on relaxing pressure it was found that the radial pulse on that side was as strong as on the other. The tumour was not tense and distended and did not seem filling with any force. Firm compresses were applied and stimulants and heat tried. The swelling slowly increased backwards, but did not become more tense. In ten days she was discharged from the ward, and in ten weeks had recovered with a stiff arm, the humerus seeming to be forming a new articular facet. ('Am. Journ. Med. Sci.,' Oct. 1873.)

*Subclavian aneurism; temporary compression of the innominate followed by ligature; death from hæmorrhage.*—Mr. Bickersteth records the case of a man, aged 40, in whom he reflected a flap of skin upwards from the right sterno-clavicular region, divided the sterno-mastoid, &c., muscles, exposed the innominate, passed a lead wire behind it, and then exercised compression by passing the wire through apertures in a bar placed in front of the artery and then drawing the wire tight. The pulsation was completely checked. In about 48 hours it was found that the wire had given away. A double silk ligature was then applied above and below the part affected by pressure from the wire. Hæmorrhage occurred on the seventh day subsequently and proved fatal on the following day. The aneurismal sac was filled with clot and the innominate from its origin to the point of ligature was filled with a firm, closely fitting plug of fibrin, but from the ligature to bifurcation and along the common carotid and subclavian arteries there was no clot. The hæmorrhage proceeded from the distal side of the upper of the two ligatures, which had partially cut through the vessel. ('Med.-Chir. Trans.,' lv, p. 129.)

*Treatment of subclavian aneurism.*—Mr. Poland continues his statistical report on the treatment of subclavian aneurism by detailing the cases in which a ligature was applied to the first portion of the subclavian artery. A tabular statement is given and then the cases are grouped

under various headings. Secondary hæmorrhage occurred in all but two, and death took place in these from pyæmia. Cases are also treated of in which other arteries were ligatured as well as the first part of the subclavian. He then passes on to ligature of the innominate.. In twelve cases death followed, and in one case, in which the innominate, carotid, and vertebral arteries were ligatured, the patient recovered. The report extends over 143 pages and scarcely admits of abstract. ('Guy's Hosp. Rep.,' xvii, 1872.)

*Aneurism of the subclavian treated by repeated galvano-puncture.*—Mr. Arthur Fergusson McGill records the case of a woman, aged 35, who came under care for an aneurism of the left subclavian of two years' duration. On April 23, 1874, two of Weiss's insulated steel needles were introduced into the aneurism from opposite sides, at a distance of four inches from each other, and were brought into apposition in the sac. The points were then separated and the current from five cells of Weiss's continuous current battery was passed. This caused great pain, twitching, &c., especially when the points accidentally came in contact. The aneurism was beginning to feel harder, when it was noticed that the insulating material was coming off the negative needle. The needles were withdrawn at the end of three quarters of an hour. On May 3rd Dr. John Duncan's needles were used; one of platinum, the other of steel. At first ten, and afterwards fifteen cells of the battery were used. In half an hour the pain was so great that chloroform was given. The aneurism gradually solidified; it increased in size but did not become tympanitic. After an hour and a half no pulsation could be detected; at the end of two hours and a quarter the needles were withdrawn. There was no pulsation for thirty hours and then it began to return. On May 23rd three needles were introduced and connected with the negative pole, the positive consisting of a damp sponge applied over the aneurism; twenty cells were used; there was no apparent result. In two months a similar operation to that on May 3rd was repeated for two hours and three quarters, chloroform being given the whole time; the aneurism gradually got smaller and harder. In November she was at work as a mill cook. (1) It is advantageous to give the patient chloroform before commencing the operation, as without it it is impossible to prolong the operation for a sufficient time. (2) The needles should be well insulated, to avoid burning the skin. (3) The current should be passed for at least two hours, probably twice that time. (4) The operation of inserting the negative needles had no effect. (5) The patient should be kept quiet in bed after the galvano-puncture. ('Lancet,' July 4, 1874.)

*Aneurism of the aorta and innominate; ligature of the right subclavian and carotid simultaneously; galvano-puncture.*—Mr. Holmes records the case and comments on the treatment of such cases. He has no doubt of the advantage of ligaturing the common carotid, but it is not equally clear that ligature of the subclavian is of any avail. Catgut ligatures are valuable if you can rapidly ensure consolidation around the ligature; if not, some other form of ligature is better. The subcutaneous injection of ergot he has found inert. The acetate of lead

he believes to be of no value. Galvano-puncture has, as yet, only been attended by negative results in his hands. ('St. Geo. Hosp. Rep.,' vi, p. 233).

*Aneurism of the arch of the aorta successfully treated by iodide of potassium.*—Dr. Keith records the case. The patient was a man, aged 35. Large doses (ʒss, thrice daily) were given. ('Edin. Med. Journ.,' June 1873, p. 1077.)

*Aneurism of the arch of the aorta treated by galvano-puncture.*—A case is reported in detail by Dr. Charlton Bastian in the 'Brit. Med. Journ.,' Nov. 22 and 29, 1873.

*Aneurism of the brachial artery.*—Spontaneous aneurisms are very rare. They are usually associated with cardiac disease. Treatment should not be too active. Traumatic brachial aneurism is decidedly under the influence of compression; if this fails, it is a question whether the old operation is not superior to the Hunterian, for the sac is often imperfect. (Mr. Holmes, Lectures, College of Surgeons, 'Lancet,' Oct. 25, 1873.)

*Arterio-venous aneurism at the bend of the elbow.*—Digital pressure is often successful, even when applied to the artery alone. Vanzetti applies pressure to the orifice of the vein as well; not to the tumour. In traumatic aneurism of the arteries of the forearm there is good prospect of cure by digital pressure. Where this fails Mr. Holmes would be in favour of tying both ends of the vessel, as this does not fail. In spontaneous aneurisms ligature of the brachial may be successful, but these aneurisms are probably of embolic origin, and not prone to rupture. It is only, then, in case of rapid growth of an aneurism, or some exceptional condition, such as pain from the neighbourhood of a nerve, that any such operation should be contemplated. (Lectures, College of Surgeons, 'Lancet,' Oct. 25, 1873.)

*Aneurism of the radial artery.*—Mr. Quain relates a case of aneurism of the radial artery in a man, aged 67. The tumour lay on the outer and back part of the carpus, behind the first metacarpal interspace. The treatment consisted in compression of the tumour by a pad and strapping and compression of the radial and ulnar arteries by means of a compressor (figured). The cure was soon effected. ('Med. Times and Gaz.,' Jan. 24, 1874.)

*Wound of the palm.*—A case of wound of the palm in which ligature of the brachial was resorted to after failure of compression, is recorded by Mr. Hulke in a clinical lecture. ('Med. Times and Gazette,' Oct. 31, 1874).

*Palmar aneurism; treatment of hæmorrhage from the palmar arch.*—Mr. W. H. Cripps narrates the case of a man, aged 35, who wounded his palm. An aneurism formed; this was laid open and two small vessels ligatured; other hæmorrhage checked by pressure. The bleeding recurring, the radial and ulnar arteries were tied. The bleeding recurred and digital pressure on brachial resorted to for seven days. Hæmorrhage recurring, the brachial was tied above the profunda in two places and the artery divided. The patient recovered well. As regards treatment of diffused aneurism, the practice of laying open the tumour and tying the vessel is admitted to be the best, but in circum-

scribed aneurism pressure may be tried. This having failed, whether the sac should be opened or the Hunterian operation performed will depend on the situation of the tumour and the chance of finding the vessel at the wounded point. The structure of the palmar fascia would appear to permit an aneurism to enlarge only in one of two directions—either towards the ball of the thumb and first interosseous space or towards the ulnar side of the palm. The wounded vessel is liable to be at some distance from the part of the tumour opened. Pressure in these cases might answer as in recent wounds. Mr. Cripps concludes that it is better, except as a last resource, to avoid opening traumatic aneurisms of the palm, since pressure appears to be particularly successful in a large proportion of these cases. In the case of bleeding from the arteries of the palm, well-adjusted pressure, not only on the wound, but also on the radial and ulnar arteries, should be tried; and further, that the arm should be carefully bandaged from the fingers to the shoulder. This pressure failing, the brachial might be tied. Pressure on the radial and ulnar is as likely to be efficient as ligature of them. It is not desirable to compress the brachial for long, since such pressure cannot be kept up without interfering with important veins. Cases of palmar aneurism illustrating modes of treatment adopted are quoted. ('Clin. Soc. Trans.,' vii, p. 157.)

*Palmar aneurism.*—Mr. McCormac records a case in which compression of the brachial artery was successful in curing a palmar aneurism. ('Brit. Med. Journ.,' May 30, 1874, p. 707.)

*Inflammation of the aorta.*—Dr. Moxon relates a case of inflammation of the aorta causing contraction of its ascending part and fatal ischæmia. Drawings of sections of the diseased aorta are given. ('Guy's Hosp. Rep.,' xviii, p. 324.)

*Galvano-puncture in the treatment of an aneurism of the descending aorta.*—Mr. Marcus Beck ('Lancet,' Oct. 18, 1873).

*Aneurism of superior mesenteric artery; trial of abdominal tourniquet abandoned owing to urgent symptoms; improvement.*—Mr. W. Haward records the case, which was under the care of Mr. Pollock. ('Clin. Soc. Trans.,' vii, p. 58.)

*Abdominal aneurism treated successfully by pressure on the aorta under chloroform.*—Four hours' compression was attended with great benefit, but subsequently a relapse occurred. At the end of a month pressure was reapplied for three hours. Consolidation gradually followed, pulsation remaining for several days. (See case last 'Bien. Retrosp.,' p. 205.) The effects of the pressure upon the pulse were remarkable, and the stomach and kidneys were affected, as shown by hæmatemesis and albuminuria. Prolonged and for some time uncontrollable vomiting on both occasions followed the compression.

*Immediate compression of the common iliac artery for the prevention of hæmorrhage.*—In the examination of a case of nephritic colic, in which a stone was supposed to exist in the renal pelvis or in the ureter, Dr. Woodbury found that while exploring the abdominal cavity with the right hand in the rectum he was able to observe that no stone of size existed in the parts indicated, and that he could feel pulsation in the large vessels of the pelvic brim quite easily. The bowel should be

evacuated by a large warm-water injection. The hand being anointed with lard and the fingers folded into a cone, it is gradually introduced into the rectum with the dorsum towards the sacrum till reaching the sigmoid flexure, when the hand may be pronated, and, as the vessels are right under the fingers, the main supply of blood to the lower limb may thus be completely controlled. The sphincter recovers its tone in a few days, and superficial lacerations, fissures of the anus, &c., need not occur if the hand be introduced slowly. ('Am. Journ. Med. Sci.,' Jan. 1874.)

*Femoral aneurism; ligature of external iliac with catgut ligature; premature absorption of ligature; second operation; recovery.*—The patient was a soldier, aged 32, under the care of Staff-Surgeon Elliot. The first ligature was applied August 20th. The artery appeared sound. A simple carbolised catgut ligature, prepared by Messrs. Weiss, of the largest size, was made use of, tied until pulsation was perfectly arrested in the sac, trebly knotted and the ends cut short off. The wound seemed to be uniting by first intention, but free suppuration was shortly established. On the 25th pulsation began to return, and on the 27th a bruit was heard. The tumour steadily enlarged. On Nov. 26 the patient was operated on again. A stout carbolised hempen ligature was tied firmly and one end left hanging out of the wound. No trace of the previous ligature could be found. The operation was tedious from the close matting of parts. The peritoneum was wounded twice and intestines and omentum protruded; vomiting ensued, and it was difficult to return the bowel. On the 28th there was a faint pulsation in the sac which then consolidated. Free discharge was again set up. On Jan. 4 the ligature separated. On Feb. 21 faint pulsation and bruit were again detected in the sac, pulsation persisting till March 2. On April 2 he was discharged fit for light duty. "This was probably a case of fusiform dilatation. The catgut ligature evidently became absorbed prematurely, permitting the re-establishment of the circulation; but it is remarkable that there should have been no formation of clot in 120 hours. It is evidently advisable to draw the ligature sufficiently tight to cut the internal coats. In this and the following case the advantage of previous pressure in preparing for the change in the circulation was marked, the after-suffering from arterial enlargement being little or none, the temperature remaining perfect and the appearance of the limb natural. In both cases intermittent pressure served only to *arrest* rapid development."

*Femoral aneurism; pressure on external iliac; cure.*—The patient was a man, aged 25. Intermittent pressure on the external iliac by a Carte's compressor was tried without success from Nov. 12 till April. Then, on April 22, 23, 28, continuous pressure under chloroform. On May 13 another attempt was made and pressure kept up for fifteen hours. At the end of nine and a half hours no bruit nor pulsation was discernible, and for the next five and a half hours no readjustment of the tourniquet was necessary. When the tourniquet was finally removed impulse and bruit became evident, but slightly weaker, and so continued throughout the day. At 1.30 a.m. on the 15th all pulsation and bruit had ceased. The sac became harder and smaller. The cure became complete. ('Lancet,' July 5, 1873.)

*Aneurism of the external iliac artery cured by five hours' continuous pressure with Lister's abdominal tourniquet applied on the abdominal aorta while the patient was under the influence of ether.*—Mr. C. G. Wheelhouse records the case. At the end of the five hours the patient was "black" in both limbs and "blue" as far as the tourniquet. A quarter of an hour was taken in relaxing the pressure. The tumour was found to have ceased to pulsate and to be firm and hard. ('Clin. Soc. Trans.,' vii, p. 51.)

*Ligature of the external iliac for femoral aneurism.*—A successful case in which a ligature of catgut was used and the wound treated antiseptically, under the care of Mr. Tibbits, is recorded in the 'Lancet,' Oct. 31, 1874. A successful case of ligature (in the ordinary way) is also recorded by Mr. Walmsley ('Lancet,' Nov. 28, 1874). Another successful case in a negro, aged 55, under the care of Mr. G. C. Sanders, is recorded in the 'Lancet,' July 25, 1874. A case of femoral aneurism, treated by ligature of the iliac, in which death occurred four days later from gangrene of the limb, is recorded by Mr. Walter ('St. Geo. Hosp. Rep.,' vi, p. 185). A successful case in a half-caste, aged 27, under the care of Mr. Johnson Smith, is recorded in the 'Lancet,' June 20, 1874. A case in a man, aged 28, under the care of Mr. Mac Cormac, is recorded in the 'Med. Times and Gazette,' Feb. 8, 1873. Digital compression and flexion of the thigh had failed, and the aneurism was spreading. The patient recovered well.

*Aneurism of common femoral; ligature of the external iliac; secondary hæmorrhage; death.*—The case was under the care of Mr. White, at Nottingham. The artery was secured with a double strand of carbolised catgut and the wound dressed with carbolised oil. On the sixth day a quantity of grumous discharge occurred from the wound and on the eighth there was considerable secondary hæmorrhage, which was stopped by pressure, but the patient sank. The artery was found to have given way at the seat of ligature, the proximal end being closed partially by clot. There was a large clot external to the vessel.

*Femoral aneurism closely simulating malignant disease.*—A man, æt. 37, came under the care of Mr. Cloag on account of a tumour in right femoral region. The skin was tense and shiny. No bruit could be detected, nor pulsation. There was great pain and the tumour steadily increased. The man died and an aneurism which had become diffused was found in Scarpa's triangle. ('Brit. Med. Journ.,' May 24, 1873.)

*Aneurism in the groin and ham of the same side; ligature of the external iliac artery; gangrene; amputation of the thigh; recovery.*—Dr. Diver relates the case of a man, aged 35, who came under his care for aneurism in the popliteal space and in the groin of the right side. The external iliac artery was tied. Forty-eight hours later gangrene commenced in the foot and very slowly advanced until a line of demarcation formed without any constitutional disturbance. On the twenty-first day the pulse suddenly rose to 144° and the temperature to 105·2°. Amputation was performed through the lower third of the thigh ten days later. The man recovered well. ('Lancet,' April 11, 1874; 'Brit. Med. Journ.,' July 11, 1874.)

*Traumatic aneurism of the femoral; digital compression for ninety minutes; cure.*—A man, aged 78, came under the care of Mr. Darke for an aneurism the size of an orange six inches below Poupart's ligament. It had followed a kick from a horse a month previously. Digital compression for an hour made the tumour harder and less pulsating and in another half hour pulsation entirely ceased. ('Lancet,' April 28, 874.)

*Aneurism of femoral artery; instrumental and digital compression; recovery.*—Mr. A. B. R. Myers had charge of the case and figures the instrument employed. ('Brit. Med. Journ.,' March 29, 1873.)

*Femoral aneurism of large size treated by pressure under chloroform, maintained for fifty-two consecutive hours.*—Mr. Holt records the case. The pressure was applied to the external and common iliacs alternately. The tumour filled Scarpa's triangle. ('Clin. Soc. Trans.,' vii, p. 56.)

*Inguinal and femoral aneurism.*—In his Lectures, June, 1874 ('Lancet,' Aug. 29 and Oct. 17, 1874), Mr. Holmes discusses inguinal and femoral aneurism. He describes specimens showing various forms of aneurism, and points out that ligature of the external iliac for ilio-femoral aneurism is often rather Anel's than Hunter's operation, for there is frequently no branch given off between the aneurism and the part of the vessel ligatured. On the other hand, when the aneurism is clearly femoral, the ligature sometimes fails owing to the large branches given off between the ligature and the aneurism. Ligature of the external iliac is shown by statistics to be successful in about three out of four cases. When performed for hæmorrhage the success of the operation has been greater. Interesting cases are related in which aneurismal symptoms recurred after ligature, probably owing to the collateral circulation through the profunda. "In the Hunterian operation on the iliac artery we have an efficient, easy, and successful method of treatment, but one which exposes the patient to very grave dangers (roughly estimated, by a death-rate of about a quarter), which is occasionally followed by the loss of the limb from gangrene, even when the patient escapes with his life, and which in exceedingly rare cases may fail to cure the disease." When the disease admits of ligature of the superficial femoral the treatment is, of course, less dangerous. Ligature of the femoral just below Poupart's ligament Mr. Holmes thinks not in itself by any means so fatal as has been represented, and that no just cause whatever has been shown for banishing it from surgical practice. When the disease extends so high as to preclude ligature of the superficial femoral, he would himself be in favour of the operation on the external iliac under ordinary circumstances, and reserve that on the common femoral for cases where the belly is extremely fat and the higher operation unusually dangerous. The chief objection to the ligature of the common femoral would appear to be uncertainty in thè origin of the profunda. Flexion of thigh he thinks of little value; one successful case is noted. The influence of digital compression is shown by a case in which cure resulted in four hours—really in two hours—and another in which cure followed though there was most extensive arterial disease. A consideration of

all the cases recorded shows very encouraging results. Eighteen cases of failure of compression are noted; in three death occurred without any further operation. Nine cases in which the sac was laid open and the old operation performed are alluded to. In one case (successful) the vein was tied as well as the artery. Twenty-three cases are recorded in which rapid pressure was applied with a view of curing the aneurism at a single sitting. Where the only alternative is ligature of the abdominal aorta the result of rapid compression has been very encouraging. Mr. Holmes thinks that the prolonged anæsthesia is quite as dangerous as ligature of the femoral, and compression of the abdominal aorta exposes the patient to considerable danger; so also does total compression of the common or external iliac. He would, therefore, prefer ligature in any case in which ligature of the femoral was suitable. A case of cure by galvano-puncture, another by manipulation, and another by direct compression of the tumour, are narrated.

*Arterio-venous* aneurism of the femoral artery and vein.—Many interesting cases are noted. The inferences as to treatment are two: —1st. That it must be directed to obliterate the orifice of communication between the artery and the vein. It is upon this communication that all the secondary consequences of the affection seem to proceed. Its obliteration may be brought about by (1) laying the sac open and tying the artery above and below; the vein may be tied or not as well. (2) By tying the artery above and below outside the sac. (3) By compression applied to the venous orifice and to the artery above the tumour. This is best done simultaneously after Vanzetti's method. Cases have been treated by first compressing the venous orifice, converting the case into one of simple aneurism, and then dealing with the latter. 2nd. All cases which have been dissected at a late period prove that the artery becomes so attenuated and enlarged above the tumour, that no operative interference can then be successful; hence the necessity of treating the disease decisively at first. The Hunterian operation is not adapted for such cases. Mr. Spence advocates tying the artery above and below the tumour without interfering with the latter; the incision required is necessarily a long one. When the tumour is below the profunda, or even when the long saphena vein would be left intact, Mr. Holmes is in favour of the old operation, and tying artery and vein. *Aneurism of the profunda* and other branches is discussed Oct. 17. *Aneurism of the popliteal,* Dec. 12, 19, &c. The importance of the condition of the sac in reference to the question of treatment is insisted on. Much also depends on whether the orifice of the aneurism is on the deep face of the artery, and the tumour grows towards the knee-joint, lifting up the vessel; or, on the other hand, is situated at the back of the artery, growing towards the vein, the nerve, and the skin, or laterally; or finally, is of the fusiform or tubular variety, in which case it often extends up Hunter's canal and becomes femoro-popliteal. The form of the aneurism is important. The progress of the case while under observation must be carefully noted, that is, the rate at which the symptoms are advancing. The presence of other disease, cardiac mischief, arterial degeneration, &c., is important. As

regards the compression treatment, the author thinks that if no impression is produced after a few days' careful trial, it is better to give it up and try the ligature. He thinks that after a prolonged and unsuccessful trial the patient is in a worse position for ligature than if compression had not been tried at all. He finds ligature of the femoral for popliteal aneurism to have been much more successful of late years than formerly; out of 77 (hospital) cases in which the femoral was tied without any preliminary treatment failure resulted in only 14 or 15, including 11 deaths. The results of compression treatment, so far as can be ascertained (hospital), are that in 66 cases success followed and in 58 failure resulted; of these latter, the artery was tied in 44, amputation was practised in 8; death occurred in one case. The number of failures seems large, but is accounted for in various ways; in eight cases amputation became necessary owing to gangrene, &c.; in five of these death ensued. The effect of compression on further treatment, and the best methods of compression remain for discussion.

*Ligature of the deep femoral artery.*—Caselli of Bologna has performed this operation ('Bullatina delle Scienze Mediche,' Nov. and Dec., 1873) in the case of a man, æt. 55, suffering from an enormous tumour of the left thigh extending from the tuberosity of the ischium to the lower third of the thigh. It presented pulsations which disappeared on compression of the deep femoral artery, but were not modified by compression of the common femoral. Nothing was discoverable by auscultation. The diagnosis was subaponeurotic carcinoma, lying between the sartorius, the ilio-psoas, the adductors, the internal rectus, and the biceps. As a hæmostatic bandage could not be applied, Dr. Caselli tied the deep femoral. An incision nearly 4½ inches long and 1·2 inch deep was made from the fold of the groin in the direction of the femoral artery. A lymphatic gland was removed. The internal saphena vein being drawn aside and the fascia lata incised, the bundle of vessels and nerves was held aside, and the profunda artery tied about four fifths of an inch below the bifurcation. The tumour was then removed. The patient died.

*Ligature of femoral artery; ligature of femoral artery and vein.*—The ligature in both cases (Birmingham General Hospital) was applied for punctured wound. Both patients recovered. ('Lancet,' Nov. 22, 1873.)

*Aneurism of the femoral artery in Hunter's canal; the sac laid open; both ends of the artery tied; recovery.*—The patient, a man, æt. 31, was under the care of Mr. John Wood. Compression failed and the tumour increased, and the leg, &c., became œdematous, so it was determined to operate. Five ligatures were applied altogether—one just above the sac, one below, one to a vessel at the upper part, one to the middle of the sac where a vessel bled, and one to the femoral away from the sac. The patient recovered well. ('Med. Times and Gaz.,' Feb. 14, 1874.)

*Elephantiasis of leg; catgut ligature to femoral; improvement.*—The patient, a woman, æt. 49, was under the care of Mr. Bryant. ('Lancet,' Oct. 24, 1874.)

*Popliteal aneurism.*—A case, in a man of 31, cured by digital compression, and another, cured by ligature of the femoral artery after compression had failed, in a man æt. 32, are recorded in the 'Lancet,' July 24, 1873. They were under the care of Mr. Bryant. The ligature used was of catgut.

*Popliteal aneurism; spontaneous cure; gangrene of the foot; death.*—The patient was a man, æt. 73, under the care of Mr. Berkeley Hill. Pain behind the knee came on seven weeks before admission. After death a small aneurism was found and a long plug in the femoral artery from the entrance to Hunter's canal downwards. ('Med. Times and Gaz.,' Nov. 14, 1874.)

*Popliteal aneurism; ligature of the femoral; gangrene three weeks later; separation of four toes; recovery.*—The patient was a man, æt. 40, under the care of Mr. Thomas Smith. The aneurism was large and no pulsation could be detected in the tibial arteries. No compression was tried. The ligature was of catgut. The wound healed well. The tumour remained soft. The gangrene did not make its appearance for three weeks, when the patient was allowed to be out of bed. The four outer toes separated at the second phalanges. ('Lancet,' July 12, 1873.)

*Popliteal aneurism cured by ligature of the femoral.*—A case under the care of Mr. Henry Smith is recorded. ('Lancet,' July 11, 1874.)

*Popliteal aneurism; ligature of femoral artery; fluctuation in aneurism for seven weeks afterwards; ultimate consolidation and contraction.*—The patient, a man æt. 47, was under the care of Mr. Smith, of Manchester. ('Brit. Med. Journ.,' Jan. 3, 1874.)

*Aneurism of popliteal artery; compression (digital) for twenty-three hours; cure.*—The patient was under the care of Mr. Sydney Jones. ('Lancet,' Nov. 14, 1874.)

*Popliteal aneurism cured by compression, at first instrumental, then digital.* Dr. Zach. Johnson records the case. ('Dub. Journ. Med. Sci.,' June, 1873.)

*Popliteal aneurism cured by compression (instrumental) in twenty-four hours; by pressure (various) over some days; by ligature after failure of compression. Aneurismal varix following punctured wound of femoral artery and vein—repeated hæmorrhage; ligature of the artery above and below the wound after failure of compression.*—Cases under the care of Mr. Hamilton. ('Dub. Journ. Med. Sci.,' May, 1873.)

*Popliteal aneurism; compression; ligature of femoral; rigors; suppuration; hæmorrhage; death.*—Mr. Hamilton records the case of a man, æt. 52, who came under his care for popliteal aneurism. After compression had been tried and failed the artery was ligatured. Suppuration in the thigh and elsewhere followed, with rigors. Hæmorrhage occurred on the twenty-first day. The man died two days later. There was no clot whatever in the artery. The vein was full of puru-

lent fluid. The aorta was much diseased. ('Dub. Journ. Med. Sci.,' August, 1874.)

*Popliteal aneurism on the right side cured by pressure—one on the left side having been cured by ligature of the femoral seven years previously.*—The patient was under the care of Mr. Birkett. ('Med. Times and Gaz.,' March 7, 1874.)

*Popliteal aneurism treated by forcible flexion.*—A case is related by Dr. O. Risel in the 'Berliner Klinische Wochenschrift,' No. 12, 1873, of a strong muscular man, æt. 41, who had an aneurism of the size of a hen's egg in the right popliteal space. The knee-joint was flexed until the heel nearly touched the buttock, and was retained in this position for 168 hours continuously; the swelling became harder and the pulsation less. Some days later, flexion was again applied for 48 hours; the pulsation and bruit altogether disappeared. It was some time before the knee could be fully extended; the swelling gradually disappeared. A year later the patient was in good health, and was able to follow his calling (as a gymnast); he had, however, occasional pain in the neighbourhood of the patella, and some tenderness in the sole of the foot.

*Diffused false traumatic aneurism of the popliteal artery; flexion; cure; relapse; ligature of femoral.*—Dr. Monette records the case of a man, æt. 25, who received a pistol-shot wound of both thighs. One ball entered on the inner side of the right thigh, two inches below the inferior margin of Scarpa's triangle. There was a sudden hæmorrhage which was soon checked. The ball was removed same day and the wound healed kindly. The ball entering the left leg, three and a half inches above the patella, ranged posteriorly, and on the inner side of the femur, severing one of the branches of the popliteal. Eighteen days after the injury symptoms of aneurism appeared; compression, digital and instrumental, was tried without success. Flexion of the knee was then tried; it compressed the tumour, diminished the size, and effected an almost perfect cure. He was lost sight of and a week later came under care, all the symptoms having recurred owing to imprudent use of the limb. The femoral was then ligatured with excellent result; had the man not been imprudent the aneurism would have been cured by flexion. ('Am. Jour. Med. Sci.,' July, 1873.)

*Popliteal aneurism treated by flexion; gangrene of leg; amputation of thigh; recovery.*—The patient was a man, æt. 28, under the care of Mr. Wagstaffe. After complete cessation of pulsation by flexion for two or three hours, the pain was so great that the pressure was relaxed. On the fourth day gangrene commenced; on the fifth it had extended to the knee without any line of demarcation. Amputation was performed; rapid recovery followed; very slight pulsation only could be felt in the distal vessels before the flexion was begun. ('Med. Times and Gaz.,' Feb. 21, 1874.)

*Aneurism of the left popliteal; forcible flexion; cure in six hours.*—A case is recorded under the care of Mr. Benfield. ('Lancet,' May 30, 1874.)

*Double popliteal aneurism.*—A man, æt. 37, came under the care of Dr. Humphrey for an aneurism in the right ham. The femoral artery was tied with a carbolised catgut ligature, and carbolic dressing applied. Profuse hæmorrhage recurred on the 19th and 26th days; the vessel was then tied with hemp ligatures. It was now found that there was an aneurism on the other side; the femoral artery on that side was tied with hemp ligatures. Pulsation soon recurred in the aneurism and finally suppuration in the sac followed. The pus was evacuated with a trocar, and the patient recovered with both aneurisms cured. ('Brit. Med. Journ.,' Sept. 19, 1874.)

*The treatment of secondary hæmorrhage after ligature of the femoral artery in continuity.*—Mr. W. H. Cripps gives tables of cases he has been able to collect in which secondary hæmorrhage has been treated occurring after ligature of the femoral artery in continuity. A. Ligature of the external iliac; of 17 cases, in 3 amputation had previously been performed, in the other 14 the first twelve proved fatal. In one case hæmorrhage recurred, and was then treated successfully by pressure; the ligature having, therefore, been unnecessary. In the other case gangrene followed ligature, but the patient recovered after amputation. In nearly all these cases bleeding returned from the original wound, the interval elapsing varying from a few hours to as many days; the bleeding usually occurring from the lower end. The facts point irresistibly to the conclusion that ligature of the external iliac in such cases is a dangerous and perfectly useless operation, and should be abolished as a method of treatment in hæmorrhage from the femoral. In many of the cases pressure was not tried; in many in which it was tried it stopped the bleeding, but a ligature was applied nevertheless; in some, when the ligature failed, compression, nevertheless, succeeded. B. Ligature of the vessel in the wound. In twelve cases an attempt was made to tie the vessel in the wound; in seven, death followed, and in five recovery. In some there was not much difficulty; in others the vessel was only secured after a long search. In two cases death seems to have followed directly in consequence of opening the wound; the bleeding point may be found and tied, but the blood lost in this proceeding may tell fatally against the patient's chance of life; the second ligature may only succeed for a time as the first did, the same causes being at work. On the whole, the chances of success by this plan appear too slight to risk the additional dangers of the operation. C. Amputation of the thigh for secondary hæmorrhage. Of six cases, three recovered and three died; it would appear to be a method only to be adopted after gangrene had set in. D. Pressure and bandaging. In fifteen cases pressure alone was adopted: only three patients died, twelve recovering. The success following this treatment by pressure alone is most marked; perhaps more so, because, in some of the cases, it does not appear to have been applied in the most efficacious manner. The following would appear to be the most effectual method of its application. The limb should be carefully bandaged with a moderate amount of tightness from the toes to above the knee; along the course of the femoral, below the wound, should be placed a pencil thickly covered with lint and the roller carried up over this. On the wound

itself a carefully made graduated compress, over which the bandage should be carried, ending in a spica at the groin; another compress might be placed over Poupart's ligament, to exercise a certain amount of pressure upon the epigastric and common femoral. Over the compress on the wound, Skey's tourniquet should be applied and kept tight for at least some hours. Should bleeding recur, the whole arrangement should be readjusted; it would seem probable that gangrene would occur, but it has not so in any case. The collateral circulation is probably well established; the alternative, if pressure fails, would probably be amputation. E. Cases in which no treatment was adopted. In three, the hæmorrhage stopped spontaneously; in four cases, the patient died before anything could be done. The author summarises as follows; it would appear that of these methods of treating secondary hæmorrhage from the femoral, ligature of the external iliac is, under no circumstances, justifiable. The operation is not only useless in arresting bleeding, but exceedingly fatal to the patient's life; amputation has the merit of being recommended by the best authorities in modern surgery, but it would seem that if the patient have sufficient vitality to bear this formidable operation, he cannot be in such a condition as to forbid a further trial of pressure. Still in desperate cases, or those in which gangrene has already set in, removal of the limb may be the only chance of saving the patient's life. Opening the wound is a hazardous and uncertain proceeding, and the chances of success appear too slight to weigh against the delay, uncertainty, and danger of the operation. Firm bandaging and the most carefully adjusted pressure are undoubtedly the treatment to be adopted in these cases, and the method should be carried out with an assiduity and perseverance derived from the firm conviction that in the majority of instances it is the only treatment to be relied on. ('St. Barth. Hos. Rep.,' x, 91.)

*Gluteal aneurism.*—Mr. Holmes discusses the treatment of the various forms of gluteal aneurism (Lectures, 'Lancet,' July 11 and 18, 1874), He sums up: 1. Gluteal aneurisms, both traumatic and spontaneous, are very favorably circumstanced for the treatment by either rapid or gradual compression applied to the aorta or common iliac. 2. If this treatment does not succeed by itself it may be supplemented by coagulating injection or galvano-puncture, performed while the patient is narcotised and the circulation commanded. 3. When such treatment fails, and particularly in aneurisms with imperfect or ruptured sacs where it is not indicated, the internal iliac must be tied when the surgeon thinks that he cannot find the artery outside the pelvis. But when the artery is accessible, the old operation, or the operation of Anel, should be practised according to the size and extent of the tumour. 4. The ligature of the internal iliac artery is liable to failure in cases of spontaneous aneurism from a diseased condition of the coats of the artery, and should always be avoided when other means of treatment are available. Ligature of the common iliac has never succeeded.

Mr. Bickersteth records a case which occurred in the person of a seaman who had three years previously fallen on a knife. Severe bleeding

occurred, but was stopped. The wound quickly healed, but an extensive aneurism resulted. Three weeks before he came under care the cicatrix burst, and a quantity of blood was lost, but no recurrence of bleeding occurred. When seen, a pulsating tumour the size of a child's head existed in the right buttock, and there was no doubt about the diagnosis. An aortic tourniquet having been applied, an incision was made into the sac nine inches long. The gluteal artery was found to have been cut across at its point of emergence from the pelvis. With some difficulty carbolised catgut ligatures were applied to both ends of the vessel, and the large wound was brought together. In a month the patient left the hospital well to attend to his duties. ('Liverpool and Manchester Med. and Surg. Rep.,' 1873, 166).

*False aneurism on the front of the leg from wound of the bifurcation of the popliteal artery; ligature; recovery.*—Prof. Spence records the following case. A man punctured the upper and outer part of his leg from the front and below. No important hæmorrhage occurred. Pressure stopped it easily. The blood which came was dark. Five days later Mr. Spence saw him and operated; an incision was made enlarging the original wound. An opening was found in the interosseous membrane. A firm, decolorised, conical mass of clot was found, and on clearing this away it was evident that there was a wound in the posterior tibial, and that the anterior tibial was nearly sliced off. Ligatures were applied above and below the wound in the posterior tibial and on the end of the anterior. Bleeding continued, and a ligature was placed on the lower part of the popliteal, and then on a small twig, and finally another immediately above, almost on, the opening, when all oozing ceased. He did well for a month; then some erysipelatous inflammation occurred, followed by sloughing of fascia and a large portion of the tibialis anticus was pulled away. He went home in seven weeks from the operation. A year later he was known to be in good health and active. Prof. Spence remarks fully on the points of diagnosis. He always recommends enlarging the original wound and passing in the finger. After some time has elapsed from the injury he has not found it so difficult to reach the wounded part as might be expected. ('Med. Times and Gaz.,' Nov. 7, 1874).

*Wound of the posterior tibial artery and simple luxation of the knee-joint; ligature of the posterior tibial artery; incipient gangrene; amputation; recovery.*—Mr. Spence records the case. The patient was a man æt. 30. The artery was ligatured where wounded about twenty-four hours after the injury, and the limb was amputated on the following day. ('Med. Times and Gazette,' Nov. 14, 1874.)

*The difficulty of diagnosis of aneurism from abscess.*—Dr. Stephen Smith writes a very interesting paper on this subject. He mentions the different symptoms indicative of aneurisms, and shows that no one of these is pathognomonic. 1. An aneurism may exist where the history and symptoms indicate abscess. Cases are noted from various sources in which all the symptoms and the history pointed to the formation of an abscess, and yet when an incision was made florid blood escaped. Aneurism frequently simulates psoas and lumbar abscesses. 2. Abscess may exist when the history and symptoms indicate aneurism.

Cases are quoted in support of this. 3. The early history alone may indicate the existence of aneurism, all the symptoms being those of abscess. The first symptom in the history which should arrest attention is the sensation of something "giving way" at the moment of injury, followed generally by swelling. This may be the only feature of an aneurism which can be elicited; it is a most important symptom, and if rightly interpreted might solve the difficult problem. An injury in the region of an artery, followed by profuse hæmorrhage, healing of the wound, and then, after a more or less considerable period, the formation of a swelling at the seat of wound with all the general symptoms of an abscess, should excite suspicion of aneurism. The fact that an artery was once impaired by a wound which subsequently healed gives great certainty to the conclusion that a tumour forming at that point is aneurismal, whether the ordinary signs are present or not. Moreover, inflammation may occur in the cellular tissue around an aneurism, and terminate in suppuration. The pus may accumulate in a well-defined abscess, or it may be diffused. In these cases the early history is that of aneurism, and if these symptoms continue well-defined the abscess is liable to be overlooked. The early history of ruptured or diffused aneurisms is very liable to be overlooked and the case treated as abscess; and yet when thoroughly and intelligently examined, patients always remember, and will describe, the essential early feature, viz., pulsation. 4. An aneurism may be formed from an abscess, in which case the early history and symptoms indicate abscess, and the later, aneurism. 5. An aneurism, having its history and characteristic symptoms for the most part well marked, may be mistaken for abscess. ('Amer. Journ. Med. Sci.,' April, 1873.)

Dr. Stephen Smith writes further in reference to the diagnosis of aneurism from non-malignant tumours. 1. Aneurism may be mistaken for cystic tumour. 2. Cystic tumour may be mistaken for aneurism. 3. Fibro-cystic tumour may be mistaken for aneurism. 4. A vascular tumour may be mistaken for aneurism. 5. An aneurism may be taken for a solid tumour. 6. A fibrous tumour may be mistaken for aneurism. 7. A neuroma may be mistaken for aneurism. Cases are detailed under each heading. ('Amer. Journ. Med. Sci.,' Oct. 1873.)

Dr. Stephen Smith continues his remarks in the number for Jan. 1874. III. Aneurism and malignant growths. 1. Aneurism may be mistaken for malignant growth. Interesting cases of this are narrated. 2. Malignant growth mistaken for aneurism. IV. Aneurism and pulsating tumour of bone. V. Aneurism and enlarged thyroid body. VI. Orbital aneurism. VII. Irregularities of bone leading to errors in the diagnosis of aneurism. Besides these, other forms of disease have been confused with aneurism, and are mentioned, glandular enlargements, &c. In conclusion he points out—1. That a tumour situated in the course of an artery is of frequent occurrence without the presence of aneurism; in itself the symptom is of no positive value. 2. Pulsation may or may not be present where aneurism exists; to be of value when present it must be expansive. The latter condition is met with in certain cases without aneurism. 3. Cessation of pulsation when the artery is compressed on the cardiac side, with partial subsidence of the swelling, may be met with often without aneurism. 4. A bruit may or may not

be present in aneurism; when present it is variable in its character. The doubtfulness of this symptom has been illustrated repeatedly in the paper. 5. Exploratory puncture may fail to give exit to blood in an aneurism, and may give a jet of blood in several kinds of tumour. 6. Diminished pulsation in the distal portion of the artery affected with aneurism may or may not exist. It follows, therefore, not only that aneurism has no pathognomonic symptom, at least among those given above, but that the symptoms most relied on in the diagnosis of aneurism may be present when there is no aneurism, and may be absent when aneurism exists.

*Diagnosis of Aneurism.*—Mr. T. Holmes contributes a paper in the 'St. George's Hospital Reports,' (vol. vii, p. 173) on "Pulsating Tumours which are not Aneurismal and on Aneurisms which are not Pulsating Tumours, being a Contribution to the Diagnosis of Aneurism." He tries to establish a clear distinction between the errors which are committed from trusting too implicitly to a single symptom, and those which are committed after a deliberate examination of *all* the circumstances of the case. It is only where the surgeon has neglected to apply all the methods of examination at our disposal that criminal blame will attach to him for a mistake in diagnosis. He discusses the cases quoted by Dr. Stephen Smith. His consideration of them leads him to the conclusion that most errors arise from neglect of auscultation. In some cases paracentesis through a small opening might, he is inclined to think, be of use. He is persuaded that the rupture of aneurisms might often be delayed, if not prevented, by tapping them, of course through the smallest possible puncture, and with all due care. He says, "Although, however, I maintain that the difficulties of diagnosis are rarer than might be imagined from the number of cases of mistaken diagnoses which are now on record, and although I cannot but think that in many of them a moderate amount of care, such as may reasonably be expected from every surgeon in so grave a case, would have obviated them, I cannot but confess the existence, occasionally, of very great difficulties." The causes of these difficulties are—(1.) The presence of transmitted pulsation in tumours, which, though they have no connection with arteries, yet lie on them and share their pulsation. When these tumours are superficial the difficulty is not very serious, but the case is widely different when the tumour is deep-seated. He quotes a case of Mr. Moore's. (2.) There are, again, other tumours which derive pulsation, not from the contiguity of arteries, but from the presence in their substance of large cavities, whereby they are brought into continuity with the arterial stream and thus approach very nearly to the character of aneurisms. Generally there are other symptoms (besides pulsation) which help us to diagnose these; for instance, they are commonly cancerous and connected with bone. He notes an exceptional case in which a cancerous mass connected with the kidney pulsated and had a bruit. After narrating a case of malignant tumour in the popliteal space considered to be an aneurism and alluding to various other cases, the author passes on to tumours which are aneurisms but do not pulsate. He details a case of abdominal aneurism in which the usual signs were absent. Of the causes assigned (by Pirogoff) which hinder

pulsation in aneurisms he discusses (1.) "when a solid coagulum of blood or fibrine fills the cavity, especially if the arterial opening is a narrow slit, or if blood has been extravasated out of the artery into the cellular or muscular tissue," and (2) "when a very large aneurismal sac compresses the vessel above itself." Mr. Holmes thinks the latter cause (practically) unproven. He thinks the usual cause is some change, either in the contents of the tumour near the mouth of the sac, or in the shape of the orifice itself, whereby the direct and free interchange of blood between the sac and the artery is hindered. The sign of alteration in size of tumour, on compressing the artery, may be of value; but it is a doubtful symptom. The conclusions which the paper is meant to enforce are:—(1) The difficulties in the diagnosis of aneurism, although they are real enough, are not so frequent as might be inferred from the statements of some authors, provided that all the means of examination are carefully employed. Most of the errors which are recorded have depended on the omission of stethoscopic examination, or occurred before the invention of the stethoscope. (2) Of tumours which pulsate, but are not aneurisms, some are abscesses and others pulsatile cancers. The diagnosis of the former is generally possible, with careful examination, since they can hardly have a true aneurismal bruit unless they communicate with the artery, when they would become aneurisms; but the diagnosis of the latter is often attended with the most serious difficulties, though on carefully and repeatedly examining the symptoms the proper diagnosis can usually be made. (3) The occasional occurrence of aneurisms which do not pulsate, and have no audible bruit, is a motive for the greatest caution in opening any presumed abscess in the situations where such aneurisms may be found, and justifies an exploratory puncture. Such exploration is more likely to do good than harm if the swelling should turn out to be an aneurism. (4) In these more difficult cases it is necessary, not merely to ascertain the existence of the ordinary symptoms, such as pulsation and bruit, but also to compare their degree with that which might have been expected if the tumours were aneurismal.

*Successful treatment of aneurism by position and restricted diet.*—Mr. Jolliffe Tufnell reports three cases of aneurism in which a cure resulted from position and restricted diet. Cases are suitable in which the aneurism springs from the front of the aorta, where the sac is entire, and the individual possesses a fibrinating power in his blood. Case 1. Aneurism of the abdominal aorta cured by rest and restricted diet in thirty-seven days. The patient was a man æt. 31. The daily allowance of food (from Feb. 17th) was, for breakfast, 2 oz. of bread and butter; 2 oz. of milk or tea. Dinner, 3 oz. of mutton, 3 oz. of potatoes, or bread, 4 oz. of claret. Supper, 2 oz. of bread and butter, 2 oz. of tea. Total, per diem, 10 oz. of solid food and 8 oz. fluid, and no more. At the end of seventeen days (March 6th) there was improvement. On March 26th the aneurism was nearly solid. Case 2. Aneurism of the abdominal aorta cured by rest and restricted diet in twenty-one days. The patient was a man aged 70. Case 3. Aneurism of the popliteal artery cured by rest and restricted diet in twelve days. The patient was a man æt. 37. ('Med.-Chir. Trans.,' lvii, 83.)

*Treatment of varix.*—Linon, of Verviers, has for some years treated varices by the local application of a solution of chloride of iron, with, he says, satisfactory results. A compress soaked in a solution of chloride of iron (8 or 10 grammes in 250 grammes of water) is laid on the part, and secured by a bandage applied with moderate tightness. At the end of twenty-four hours the dilatation of the veins is perceptibly less; and it disappears under the daily renewal of the application in from eight to fourteen days. The best material for the compress and bandage is flannel, which resists the action of the iron longer than linen. ('La Tribune Médicale,' 21 December, 1873.)

*Treatment of varix by injection of chloral hydrate.*—Porta and Valleriani treated fifteen cases of varix of the lower limbs, unattended with phlebitis, by the injection of chloral hydrate, at first in quantities of one gramme (15 grains) gradually reduced to a half and a third of a gramme. The coagula were absorbed, and the veins either atrophied or remained pervious, but not varicose. The operation did not produce either thrombosis, phlebitis, or suppuration in the neighbourhood of the veins. Porta has employed the method with good result in varicocele, and recommends its use in nævus, aneurismal varix, and hæmorrhoids. ('Gazzetea della Cliniche,' Nov. 1, 1874.)

*Sudden death following the injection of perchloride of iron into a nævus.*—Mr. Kesteven records the case of an infant, aged nine months, who died within five minutes of the injection of a nævus with perchloride of iron. The nævus was on the head and had been partially cured six months previously by similar treatment. The child was subject to laryngismus stridulus, and Mr. Kesteven thinks it died in an attack of this malady, for it was seized with great difficulty of breathing. ('Lancet,' Feb. 7, 1874.)

*Nævus in an infant injected with perchloride of iron; death.*—The patient was nine months old, and was under the care of Mr. West for a nævoid tumour, about the size of a small marble, on the right ala nasi, near the tip. Chloroform having been given, three drops of a solution of perchloride of iron were injected by a hypodermic syringe into the lowest part of the tumour. Three more drops were injected into the upper part of the tumour, and three more at a third part. On withdrawing the syringe the last time the child's face changed suddenly to a dusky hue, the hands and feet became blue, the pulse could not be felt, &c. After artificial respiration the child rallied a little, but remained unconscious. He continued in this state for three days, and then died with well-marked hemiplegic symptoms. A clot was found in the right middle cerebral artery. ('Lancet,' March 21, 1874.)

*The means of arresting hæmorrhage from deep cavities.*—Dr. Lente has an article on this subject, more especially with reference to the rectum. Plugging he thinks objectionable, though efficient, on account of the inconvenience it causes the patient. Sometimes the plug sets up considerable fever; when this is the case, great relief may often be afforded by injecting some antiseptic frequently over any cut surfaces. Dr. Lente prefers to ligature any bleeding point, and for this purpose employs the method suggested by Dr. Whitehead (see last Retrospect),

but uses a thread-carrier invented by himself. It is an aneurism needle somewhat elongated, curved more abruptly, and is manipulated in much the same manner. The bleeding vessel, with some of the tissue surrounding it, having been seized by means of a tenaculum and lifted well up, the needle with its thread is passed around and the thread hooked up, and drawn out of the eye and down through the anus by means of a hook; a knot is then to be made and pushed up as far as may be with the fingers and completed with some appropriate instrument. With A. L. Carroll's contrivance it can be done at any depth as readily and as securely as with the fingers. It consists of long slender forceps, the ends opposite the handles curving outwards and furnished with hooks opening outwards. Each thread passes through a hook, and, when the handles are pressed together, the hooks are separated, and the knot (previously tied) is tightened as much as may be desirable. Where many points bleed, ice (or a mixture of pounded ice and salt) may be pushed up in a bladder to the requisite height. A pair of uterine forceps or long artery forceps might be used for any very troublesome bleeding point and left hanging on for some time. After an operation the author suggests the insertion of a wire frame or speculum for a few hours; this would allow of any bleeding being readily detected, and of the rectum being washed out with a constant stream of iced water, which is better than retaining lumps of ice. The instrument must be of peculiar construction, or it may be injurious in two ways: first, by provoking contraction of the sphincter and thus inducing tenesmus; and, secondly, if the wires are too widely separated, the wounded parts may catch between them and thus pain, and even hæmorrhage, be caused by the withdrawal of the instrument. The instrument is four inches in length and one inch in diameter at the largest part. The wires should be as small as is consistent with requisite strength and only one eighth of an inch apart. They should converge at the distal end, so as to give it a conical form and be capped by polished steel. The neck (to be embraced by the external sphincter) is half an inch in diameter, and one inch in length. There are two loops of wire at the external orifice, one above and one below, for tapes to be attached to a band around the hips, to prevent the rectum from ejecting it. A figure of the instrument is given. ('Am. Journ. Med. Sci.,' July, 1873.)

*The winged screw tourniquet.*—Surgeon-Major A. Moffit describes and figures a screw tourniquet with wings attached to the upper plate (of Petit's tourniquet). The wings expand to six and a half inches. The bottom of the screw is attached to a small square plate, which again is attached to the pad by four screws, the strap being permanently fixed under the plate. The pad is quadrangular and of wood, half an inch thick, two inches long and one and a half broad, and slightly concave on its under surface. The tourniquet is portable, simple, has good compressing power, is steady, and does not constrict the limb. When folded up, it forms a package three inches and three quarters in length, two inches broad, and an inch and three quarters in depth. There is a double shortening of the strap at each side, and in this way the requisite amount of pressure is rapidly reached. The old screw tour-

niquets are convertible into this one. ('Brit. Med. Journ.,' Jan. 3, 1874.)

*Torsion.*—Reports from the metropolitan hospitals on the use of torsion will be found in the 'Brit. Med. Journ.' for Dec. 20, 1873.)

*Esmarch's elastic bandage.*—Mr. W. H. Cripps figures and describes a simple and easy method of applying the elastic bandage. Instead of using a long bandage in the ordinary way, he uses a piece of sufficient length to go several times round the limb, the ends being fastened together. He now slips a reel (with two handles) under the loop and winds this round and round the limb spirally. Compression is thus exercised with any required vigour as high as desirable with a short instead of a long bandage and with great expedition. ('Lancet,' Oct. 11, 1873.)

*Partial rupture of arteries from external violence.*—Mr. T. P. Pick records a case in which there was a rupture of the internal and middle coats of the femoral artery caused by a severe strain and followed by a gradual dilatation of the outer coat and the formation of a traumatic aneurism. Gangrene of the limb set in and the patient died shortly after amputation at the hip-joint. Digital compression had been tried previously for the cure of the aneurism and with apparent success for a time. ('St. Geo. Hosp. Rep.,' vi, p. 161.)

*Slight injury to the leg; sudden death; thrombi in right ventricle from popliteal vein.*—Dr. A. B. Shepherd records the case. ('Lancet,' Sept. 19, 1874.)

*Sudden death from embolism of the pulmonary arteries; phlebitis of the leg following a blow.*—Mr. Gascoyen records the case of a man, æt. 44, who had a slight injury to the leg followed by swelling. He died suddenly a fortnight or so afterwards. The branches of the pulmonary artery were found plugged. The left femoral vein and its tributaries from below were plugged. The original injury, it was supposed, affected some small vessels in the popliteal space, and was followed by coagulation in the veins of the leg and thigh. Exertion detached a portion of clot from the femoral vein, which was arrested in the pulmonary arteries. ('Lancet,' Aug. 8, 1874.)

*Sudden death from embolism of the inferior vena cava in connection with varicose veins of the leg.*—The case is recorded by Surgeon Thos. Browne. The patient was a man, æt. 51, who had varicose veins of one leg and received a blow on the leg, causing bruising, &c. He had pain in the leg and the veins seemed swollen and knotted. He recovered in a few days, but while running was suddenly taken ill, faint, and died in three quarters of an hour. A clot was found in the inferior vena cava. It was supposed that a clot had formed in the internal saphena and then, when he ran, a portion of this had become detached and impacted in the common iliac, &c. From this point coagulation had extended. ('Lancet,' June 27, 1874.)

*Epistaxis.*—Mr. Prescott Hewett calls attention to the importance of severe epistaxis spontaneously occurring after the middle period of life. In several cases which have come under his notice it has been associated with thickening of the radial artery and ultimately with cerebral hæmorrhage. ('Clin. Soc. Trans.,' vii, 1873.)

*Thrombosis; thromballosis.*—Mr. Prescott Hewett directs attention to the frequency with which it occurs spontaneously. In some cases it was connected with fever; typhoid or smallpox. He has been inclined to attribute the clotting in some of the cases to a gouty condition, described by Sir James Paget as gouty phlebitis. Most of the patients were beyond forty years of age, and had more or less definite gouty symptoms. With two exceptions all the cases of blocked veins occurred in the lower extremities. In one, a brachial vein was affected, and in the other both axillary veins. In most, the clotting spread with the current of blood, but in a few the contrary occurred. They were all tedious. He has met with blocking of veins in the corpus cavernosum penis in patches. ('Clin. Soc. Trans.,' vi, 1873.)

*Thrombosis of the arteries of the extremities.*—Dr. Lidell writes on this subject. It is most frequently met with in connection with the so-called spontaneous gangrene of the aged. Cases are detailed and comments made on them. In some cases the thrombosis begins in the small distal arteries and sometimes in the main artery of the limb. In some cases the thrombosis is secondary to plugging by an embolus. The several diseases in connection with which it has been found to occur are—1. Puerperal gangrene. 2. Rheumatic gangrene. 3. Ulcerative endocarditis. 4. Asiatic cholera. 5. Pleuro-pneumonia. 6. Typhus. 7. Constitutional syphilis. 8. Inflammation of the parts surrounding large arteries and veins. The coagulum may, by its presence, and acting as a foreign body, cause the surrounding arterial tissues to become inflamed. The majority of the cases noted of thrombosis primarily attacking the large arteries of the extremities have occurred in young or middle-aged people. The aged are also subject. Thrombosis of the peripheral or systemic arteries is sometimes met with in young children. Arterial thrombosis sometimes gives rise to remarkable forms of ulceration. Sometimes it occasions merely a low degree of inflammatory action. The agencies concerned in its production are—1. Increased coagulability of the blood. 2. Atheromatous and calcareous degeneration of the arterial walls. 3. Feeble heart action. 4. The lodgment of embolia in the arterial canals. Inflammation of the coats of the arteries plays an insignificant part in the production of thrombosis. It is more frequent in the lower extremity because the arteries are here much more liable to suffer from atheromatous and calcareous degeneration; and (2) the arteries of the lower extremity are much further off from the central organ of the circulation than those of the upper extremity. The phenomena resulting from thrombosis of the arteries of the extremities vary according to the size of the obstructed vessel and the extent of the coagulum itself. When the minute arteries are the primary seat of the coagulation, two distinct types are presented. In one of these a brown spot forms (say) on one toe; it soon becomes black and gradually spreads until the whole toe becomes completely dry. In favorable cases a line of separation forms and the part falls off. In another series of cases the disease begins with symptoms of inflammation, œdema, discoloration, &c.—moist, hot gangrene. Septicæmia more frequently occurs than in the process of mummification. When the main artery of the limb is the primary

seat, the phenomena are much the same as those which are produced by applying a ligature to the same artery. The parts become cold and blanched; no pulsation can be detected beyond a certain point. If a collateral circulation become established the symptoms may pass away; if not, the affected parts acquire a deadly coldness, an utter insensibility, a complete paralysis with a violet colour, or, perhaps, a mottled appearance of the skin. The gangrene is immediate. Decomposition soon sets in, and, if no line of demarcation is formed, septicæmia will speedily occur and destroy the patient. ('Am. Journ. Med. Sci.,' Jan. 1873.)

*Plastic surgery of the nipple.*—In the 'Centralblatt für die Medicinischen Wissenchaften,' April 12, 1873, Prof. F. A. Kehrer, of Giessen, describes an operation for the purpose of remedying imperfect development of the nipple. In some instances, he says, the surface of the nipple lies partly or entirely below the level of the areola, but may be rendered prominent by sucking. There is also another group of cases in which the nipples may be aptly described as *mammillæ circumvallatæ*. In the centre of a depression, often from one fifth to two fifths of an inch deep, lies a small, very short, hard, pale nipple, which cannot be made to project even by the most powerful traction with sucking-glasses. The difficulty is increased by the swelling of the areola under mechanical irritation, and frequently by the narrowness of the depression.

This condition is remedied by a plastic operation, consisting in excision of the areola. An incision is made along the upper border of the areola, and meets a similar incision made along the lower border. The skin, with the pale muscular tissue, is then raised from the subjacent connective tissue so as to isolate the nipple on all sides, care being taken to avoid wounding the milk-ducts. The flaps are then cut away, a piece of skin about $\frac{1}{25}$ to $\frac{1}{12}$ of an inch wide being left around the nipple; the bleeding is arrested by the application of cold sponges, and the edges of the wound are united by sutures. To prevent dragging, the skin is undermined by means of a sharp knife. The wound lies transversely, and is circular in the middle, corresponding to the nipple. The after-treatment is that ordinarily followed in wounds of the skin.

After the healing of the wound the nipple lies at the level of the surrounding parts, or projects a little. By the frequent and continued application of sucking-glasses with a narrow opening during pregnancy, the nipple may be so far raised as to be rendered easy of access to the infant. Care, however, must be taken not to apply suction too forcibly, lest vesication or excoriation be produced.

Dr. Kehrer had treated two persons in this way, both nipples being operated on in each case. The first case was that of a non-pregnant woman, on whom, in her first childbirth, various attempts had been made, but without result, to make the nipples project. Before the operation the nipples could not be rendered visible even under powerful suction. Dr. Kehrer removed the areolæ: healing took place partly by the first intention, and the nipples projected from $\frac{12}{100}$ to $\frac{35}{100}$ of an inch above the surrounding parts. By sucking-glasses they could be raised to a height of nearly $\frac{1}{3}$ of an inch. In the second case, a pregnant woman was operated on six weeks before

her confinement. In her first childbirth all attempts to make the nipples project were fruitless. The right nipple had also a central depression, the left a transverse slit: both were short, hard, and deficient in blood-vessels. After the healing of the wounds, which was attended by rather tedious suppuration, the outer portions of the nipples lay at the level of the surrounding parts, the central portions deeper. By the subsequent application of a narrow-necked sucking-glass, the left nipple was rendered so far prominent that the child could suck from it; the right one remained useless, partly from its great shortness and stiffness, and partly from the occurrence of mastitis.

In both cases contractile pigmented areolæ, as large as those which had been removed, were developed.

*Disease of the mammary areola preceding cancer of the mammary gland.*—Sir James Paget contributes a paper on this subject. He thinks it has not hitherto been pointed out that certain chronic affections of the skin of the nipple and areola are very often succeeded by the formation of scirrhous cancer in the mammary gland. He has seen about fifteen cases. The patients were all women, varying in age from 40 to 60 or more years. In all of them the disease began as an eruption on the nipple and areola. In the majority it had the appearance of a florid, intensely red, raw surface, very finely granular, as if nearly the whole thickness of the epidermis were removed like the surface of very acute diffuse eczema, or like that of acute balanitis. There was discharge and some tingling, &c., in the part, but no disturbance of the general health. It did not extend beyond the areola and only once did it pass into a deeper ulceration of the skin after the manner of a rodent ulcer. Another form, attended with increased production of dry epidermis, therefore like psoriasis, did spread beyond the areola and in fact over almost the whole breast. The cancer has followed within at most two years and usually within one year. On the whole the eruption does not differ from eczema or psoriasis. The formation of cancer did not in any case take place first in the diseased part of skin. It has always been in the substance of the gland, beneath or not far from the diseased skin, and always with a clear interval of apparently healthy tissue. There has been nothing peculiar in the nature of the cancer. The sequence of cancer after the chronic skin disease is so frequent that it may be suspected of being a consequence and must always be feared, and may be sometimes almost certainly foretold. A persistent rawness of the glans penis may be followed after more than a year's duration by cancer of the substance of the glans. Irritation of the surface of the lower lip often precedes cancer in its substance. Superficial syphilitic diseases of the tongue are followed by cancers which do not always appear to commence in a diseased part of the tongue. It may be suggested that a superficial disease induces in the structure beneath it, in the course of many months, such degeneracy as makes them apt to become the seats of cancer, and that this is chiefly likely to occur in the cases of those structures which appear to be most liable to cancer. So cancer of the rectum, pylorus, &c., may be hastened in its course by surface irritation. Practically, should such a part be removed? In the member of a family in which cancer has frequently occurred and

who is at or beyond middle age, the risk is very great that such an eruption of the nipple will be followed by cancer. In two cases the nipple was removed, but too late. If the disease is extensive good scar tissue may not be formed after removal of the diseased patch, and then bad scar tissue, often irritable and ulcerating, is as likely to induce cancer as the syphilitic or ichthyotic patches would have been. ('St. Bartholomew's Hospital Reports,' x, 87.)

*Pustular or disseminated scirrhus of the breast in a man.*—At a meeting of the Niederrheinische Gesellschaft in Bonn, on July 21, 1873, Prof. Dontrelepont related the case of a man, very weak and emaciated, æt. 50, who was affected with this form of cancer (squirrhe pustuleux ou disséminé of Velpeau). There was no family history of cancer. In July, 1870, he perceived a hard painless swelling of the left nipple; iodine ointment was applied. In 1872 the patient, for the first time, felt pain in the tumour, which was attributed to the pressure of his braces; and from this time the swelling gradually increased. In February, 1873, the tumour ulcerated, and extended more and more; the ulcer was cauterised with nitrate of silver. At the end of May, when he came under Dr. Dontrelepont's care, the tumour was firmly adherent to the ribs. The ulcer was nearly circular, and had a diameter of about 2¼ inches; its base presented many fissures, and appeared as if cicatrized at some points; the margin was raised and very hard. At a little distance there were several cutaneous nodules larger than lentils, and near the axillary line there was one almost as large as a pigeon's egg; all were movable. At the edge of the sternum and near the xiphoid process were two nodules which had become firmly adherent to the bones. Several of the axillary glands were swollen and felt very hard. The patient was taken into hospital for some time, at his own request. During his stay there, several fresh nodules appeared in the skin around the ulcerated surface; and in July about a dozen new growths had formed, the ulcer itself (which had been dressed with chlorate of potash) and most of the nodules showing scarcely any signs of growth. Two freshly formed cutaneous nodules were removed for microscopic examination. This showed that the case was one of scirrhus. In the neighbourhood of the nodules, an infiltration of cells ran obliquely towards the surface of the skin in the form of canals, which presented irregular enlargements, were branched, and on closer examination were found to be evidently lymphatics. Where these infiltrations were present there was also cell proliferation. Dr. Dontrelepont considered it probable that in this case the scirrhus spread through the cutaneous lymphatics. Whether the epithelial lining of the lymphatics had a direct share in the process, or whether there was only a growth of cells within the vessels, could not be determined.

*Cancer of the breasts in a man; removal; recovery.*—The patient was sixty-one years of age. The disease was scirrhus. Both breasts were removed by Mr. Wagstaffe. In the left, the disease was of eighteen months' duration; in the right, of three months' duration. ('Med. Times and Gazette,' Aug. 1, 1874.)

*Primary scirrhus of the breast treated by caustics and incisions.*—Mr. Kesteven treated a scirrhus of the breast in a patient æt. sixty-five,

with incisions and application of chloride of zinc successfully. The tumour was about the size of an egg. Repeated applications were made and a cure resulted. In two years a local recurrence took place, but this was soon checked by the same plan. Six years later the patient remained quite well. ('Clin. Soc. Trans.,' vi, 147.)

*Excision of cancer of the breast by scissor-cutting under ether spray.*—Dr. B. W. Richardson records a case of scirrhus of the breast of the size of a small hen's egg, in which he removed the tumour with scissors under ether spray. A large spray of common ether was first used, and then the light fluid called anæsthetic ether was applied for a few minutes till the whole of the breast was frozen hard. A pair of small, strong, sharp, slightly curved scissors were used to cut through the skin, to form upper and lower flaps. The deeper cutting was performed with a pair of his strong, slightly curved, *tooth-edged* scissors, which cut without causing bleeding. The edges of the wound were closed with sutures, a pledget of cotton wool charged with styptic colloid was placed over the wound, and a lint-pad and bandage over that. The dressing was not removed till the sixth day. The wound was then healed. In a second case very similar proceedings were adopted, and with success. Dr. Richardson remarks on the efficacy of the local anæsthesia and the method of cutting with scissors. In both cases there was such disturbance of the heart's action that the inhalation of an anæsthetic would have been dangerous. After the operations both patients experienced marked relief in this respect. ('Lancet,' Aug. 29, 1874.)

*Solid galactocele.*—Dr. W. F. Atlee presented a specimen to the Coll. Phys. of Philadelphia of solid galactocele. It consisted of a single large sac filled with a curd-like mass of a greyish-white colour; there was no true cyst-wall. ('Am. Journ. Med. Sci.,' April, 1874.)

*Large adenocele complicated with milk-cyst.*—Mr. Le Gros Clark records a case (with an illustration). The tumour was removed successfully. It weighed eleven pounds, and was found to consist of an enormous milk-cyst, surrounded by succulent solid walls, on which were milk-tubes and at least one extra cyst. It had been growing about eight years, and commenced in a virgin breast at or before the age of sixteen. The patient never remembered seeing any milk or fluid of any kind exuding from the nipple until after her confinement, and then it did not flow freely, but only now and then. ('Med. Chir. Trans.,' lvii, 95.)

*Recurrent tumour of the breast.*—Mr. W. Haward records a case. ('Clin. Soc. Trans.,' vii, 106.)

*New growths in the breast associated with cysts.*—Mr. Birkett writes on this subject, and mentions cases in which carcinoma developed in a cicatrix eleven and a half years after the removal of an adenoid tumour, attended by escape of serum from the nipple; one of serous cyst which underwent spontaneous cure after existing twelve or fourteen years; another in which the breast was removed after some years; another in which there was no recurrence for five years; a case in which a cyst was removed, and fourteen years later another formed and was successfully removed, but was followed by another six years later, which

seemed, at first, to be cystic, but ultimately assumed all the objective signs of carcinoma; two cases of cysts which were non-recurrent; a case of cancer with cyst, removal, followed by death from general diffusion of cancer; and a case of cyst which was emptied and refilled, cancer developed, the breast was removed and there was no local recurrence, but death occurred nearly eleven years later from cachexia. Illustrations are given. He adopts the following classification.

| *Cysts in the Breast.* | | | |
|---|---|---|---|
| | I. Associated, communicating, or connected with the ducts. | 1. Milk.<br>2. Growths; with serum, coagulable, and sometimes tinged with blood. | 1. Adenoid.<br>2. Granulation cells.<br>3. Cancer. |
| | II. Not connected with the ducts. | 1. Blood.<br>2. Milk.<br>3. Simple cysts.<br>4. Entozoon cysts. . . . . | Serum not coagulable. |
| | | 5. Growths; with serum, coagulable, tinged with blood, and containing cholestearine. | 1. Adenoid.<br>2. Granulation cells.<br>3. Cancer. |

('Guy's Hos. Rep.,' xviii, p. 413.)

*Fracture of coracoid process by muscular violence.*—The patient was a man, æt. 57, under the care of Dr. Hulme (Dunedin Hospital). ('Lancet,' Nov. 22, 1873.)

*Comminuted fracture of the clavicle, with compression of the subclavian vein by one of the fragments.*—Mr. Erichsen gives a clinical lecture on the case of a man, æt. 27, who came under care for a comminuted fracture of the clavicle. A bandage was applied to the limb and the arm fastened to the side. The next day the arm swelled and continued to swell for several days, necessitating incisions. The limb having become gangrenous in part, and large sloughs separating, amputation at the shoulder-joint was performed seventeen days after the accident. Eleven days later the man died with symptoms of pyæmia. The fracture was peculiar. A fragment compressed the subclavian vein. A figure of the bone is given. Should a similar case occur it would be advisable to leave the limb without any bandage which could exercise compression. ('Brit. Med. Journ.,' June 7, 1873.)

*Comminuted fracture of the clavicle; compression of the subclavian vein and subjacent plexus of nerves by a fragment.*—Dr. W. H. Boone ('Med. Record,' Nov. 15, 1873) reports the case of a man, æt. 28, who sustained a comminuted fracture of the clavicle about the middle. One fragment, about an inch and a quarter in length, was tilted so as to lie transversely between the two larger ones; there was much deformity. The arm was cold and there was considerable swelling of the veins; no sensation in the fore-arm or in the fingers, while he complained of pain at the seat of the fracture. No efforts could alter the position of the fractured portions. The arm was secured to the chest, and the whole limb wrapped in cotton wool. The swelling, &c., increased for the next two days, at the end of which time some incisions were made in the upper part of the fore-arm and in the arm. From

this time the patient did well. He returned to his work. ('Am. Journ. Med. Sci.,' Jan. 1874.)

*Fracture of the clavicle; laceration of the internal jugular vein.*—Dr. J. W. Ogle records a case. ('Brit. Med. Journ.,' July 26, 1873.)

*Simple comminuted fracture of the clavicle treated by the removal of a sharp fragment.*—Mr. Thomas Annandale records a case under his care. ('Brit. Med. Journ.,' July 26, 1873.)

*Simultaneous dislocation of both ends of the right clavicle.*—A man, æt. 32, came under the care of Mr. Lund. A shaft of a cart struck him at the back of the right shoulder, whilst his left was fixed against a gate-post. The right clavicle was found to have been dislocated at both ends—the sternal forwards, the acromial backwards and upwards. Under chloroform the bone was got into fair position and kept so by pads. Nine months after the accident he could use his arm as well as ever. ('Brit. Med. Journ.,' Jan. 24, 1874.)

*Dislocation of shoulder of twelve weeks' standing, reduced under chloroform; cure.*—The patient was a man, æt. 36, under the care of Mr. Heath. ('Med. Times and Gazette,' Nov. 14, 1874.)

*Simultaneous dislocation of both humeri.*—A man, æt. 72, came under the care of Mr. Pearse with dislocation of the left humerus beneath the coracoid and of the right under the spine. He had fallen down stairs with a jug in his hand. The left dislocation was relieved by the ordinary method. The right one by slight pressure on the projecting head, the elbow being at the same time drawn backwards. The head returned easily with an audible snap. No ill effects followed. ('Lancet,' May 2, 1874.)

*Recent dislocation of the humerus, with fracture of the coracoid process.*—A specimen is described in detail by Dr. Bennett, and figured. ('Dub. Journ. Med. Sci.,' Oct. 1873, p. 345, &c.)

*Absorption of the humerus, after fracture.*—('Boston Med. and Surg. Journ.,' Oct. 10, 1872.) The patient, a male, æt. 18, broke his right arm when about eighteen, three times in succession. The bone never united. The humerus began slowly to disappear. There was no external wound. For four years he did no work. The process of absorption covered a period of twelve years. From that time till the age of 70 the condition remained unaltered. After death all trace of the shaft of the humerus had disappeared. The upper extremities of the radius and ulna were atrophied and fused together. A careful description of the specimen is given. The man could do any ordinary work. He could write well. By twisting the upper part of his arm he could use his fingers to tie his neckerchief. The muscular power of the arm was considerable. ('Am. Journ. Med. Sci.,' Jan. 1873, p. 284.)

*Fracture of the coronoid process.*—In an essay on "fractures of the elbow-joint" by Walter Ela, a case of fracture of the coronoid process (complicated with an impacted fracture of the radius) is given, and the appearances of the specimen are shown by means of a well-executed "alber-type." ('Am. Journ. Med. Sci.,' Oct. 1873.)

*Rupture of the biceps muscle.*—Dr. Ashhurst records a case ('Phil. Med. Times,' Jan. 11, 1873). The patient was a man, æt. 35. He could

not use the left arm after falling from a waggon, and on examination a rupture of the belly of the biceps was discovered. There was very little evidence of injury to the skin. The ends were brought together as well as possible by pads, bandages, position, &c. At the end of ten days there was only a slight indentation visible, and movements of the elbow did not excite pain. He was then lost sight of. ('Am. Jour. Med. Sci.,' April, 1873.)

*Compound dislocation of the elbow; rupture of the brachial artery; recovery.*—A case is recorded in the 'Lancet,' Aug. 8, 1874. The patient, æt. 18, was under the care of Mr. McCarthy. The articular surface of the lower end of the humerus protruded through a lacerated wound at the anterior and inner part of the fore-arm. The brachial artery was found to have been torn across. The progress of the case was uninterruptedly good. At the end of eight weeks the lad was sent into the country with the wound healed and the elbow anchylosed at a convenient angle.

*Splint for treatment of compound fractures of the fore-arm.*—Mr. Callender figures a splint consisting of a piece for the arm and another for the fore-arm, with a joint for the elbow, and also admitting of rotation of the piece for the fore-arm, owing to its being fastened on a bar (round which it can turn) by a screw. The fore-arm can thus be set at any angle of supination to accommodate it to the position taken by the upper fragment in fracture of the radius below the tubercle. ('St. Barth. Hosp. Rep.,' ix, 33.)

*Dissection of a recent case of Colles' fracture of the radius.*—Dr. Chiene describes a recent specimen of Colles' fracture of the radius in detail in the 'Edin. Med. Jour.,' June, 1874. The patient was a woman, æt. 60. The symptoms were of the usual character. On examination there was extravasation of blood, no rupture of tendon. The principal strain appeared to be on the flexors of the thumb and fingers. The lower fourth of the pronator quadratus was torn across, and no fibres of this muscle remained adherent to the lower fragment of the radius. There was extensive splintering of the lower fragment into the wrist-joint. A careful examination of specimens shows that splintering into the joint is not at all uncommon, and the same is indicated by the stiffening of the wrist which is so commonly met with afterwards. The fracture was fairly transverse. (Illustrations of the lines of fracture are given.) The lower fragment was split into two others by vertical cracks. On looking at the carpal surface, in addition to the fissure running along its posterior border, there was a portion of the centre of the surface separated from the rest and driven at the same time upwards into the cancellated tissue. The tip of the styloid process of the ulna was broken off. The triangular ligament was entire and firmly bound the lower fragment of the radius to the ulna. The cause of the usual displacement met with is carefully discussed. It is attributed rather to the direction of the original force than to muscular displacement. The upper fragment had passed into the lower fragment, crushing the cancellous tissue. There was penetration, but no impaction. Dr. Chiene does not think that penetration with impaction accounts for the immobility met with now and again. He thinks it is rather due to the carpus being driven up against and into

the lower fragment of the radius, and to its becoming locked there by the fibrous and muscular tissues around. Too much stress has been laid on the action of the supinator longus and the extensors of the thumb. All the muscles which pass from the fore-arm to the carpus and hand to the radial side of the ulnar attachment of the triangular ligament assist in causing the deformity. Two splints are recommended, anterior and posterior; the former only passing down to the lower end of the upper fragment, the latter only to the bases of the fingers. The fingers should be free, from the commencement of the treatment, and should be moved.

*Dislocation forwards of the styloid end of the ulna.*—Dr. Purdon records the case of a man who got his hand pushed in between the rollers of a planing machine, his fore-arm being drawn in likewise in a slanting direction. The rollers yielded a little. The hand and wrist were much twisted. On examination the limb had a curious appearance, there being a hollow on the ulnar side posteriorly, while in front, just above the wrist, a hard swelling was felt and diagnosed to be the styloid end of the ulna, displaced forwards. Reduction was easily effected. ('Edin. Med. Journ.,' Oct. 1874.)

*Dislocation of the carpus backwards from the radius and ulna.*—A recent case is reported from University College Hospital. The patient was a man æt. 42. The radius and ulna were of the same length as on the other side, but measurements to metacarpus showed distinct shortening. The deformity was removed by extension, and no crepitus was felt. The impaired movements as regards flexion and from side to side were completely restored. The symptoms are carefully described. ('Lancet,' May 17, 1873.)

*Unreduced dislocation of the hip-joint.*—Mr. Samuel Lee records the case of a man whose hip was dislocated in a buffer accident, and who died soon afterwards, the dislocation not having been reduced. Two of the main signs of dislocation on the dorsum were absent,—namely, the advanced position of the knee, with the foot resting upon the opposite one, and marked shortening. The head of the femur, after death, was found below the pyriformis muscle and immediately behind the acetabulum, the capsule being freely lacerated except in front and behind. The ligamentum teres was torn off close to its attachment to the femur. No laceration of any muscle was found. The muscles were the main obstacles to reduction. Cases are alluded to which have been already reported, especially Mr. Quain's; Mr. Lee corroborates Mr. Quain's remarks, and approves of his plan of reduction. ('St. George's Hospital Reports,' vii, 169; see preceding Retrospects.)

*Dislocation of the femur directly upwards.*—A case is narrated in the 'St. Barth. Hosp. Rep.' (x, 316), under the care of Mr. Savory. A man, æt. 20, fell on the left great trochanter He got up and walked and continued to do so for some days. There was shortening and eversion, but the thighs were parallel. The hip was quite fixed. The trochanter was more prominent and displaced upwards and backwards. The distance from the anterior superior spine to the top of the great trochanter was the same on both sides, as the displacement backwards compensated for that upwards. The distance from the pubes to

the great trochanter was increased, and also from the vertebræ. Reduction could not be accomplished at first. On a second attempt Prof. Busch's formula was adopted. The thigh was abducted, rotated outwards, carried to hyperextension, then rapidly rotated inwards and placed straight. The bone passed noiselessly into its place. The head was supposed to have been dislocated directly upwards, below and external to the anterior inferior spine of the ilium, and bounded in front and strapped down by the Y-shaped ligament of Bigelow. The symptoms differed from those usually met with. The power of immediate locomotion was remarkable, and was probably owing to the head being grasped and steadied by the Y ligament.

*Spontaneous dislocation of the femur.*—Mr. Morrant Baker records the case of a child, æt. 4 years old, who came under his care with dislocation of both femora upwards and backwards. The child had been able to walk and run till four months previously. There was no evidence of disease of the hip. The limb could be lengthened about an inch. It was found quite impossible to retain the bones in apposition. A case under the care of Mr. Thomas Smith is quoted. A child, æt. 9 years, had been the subject of dislocation of the hip for four years. It had come on "spontaneously." The child died of diphtheria, and at the post-mortem the ligamentum teres was found enormously lengthened and thickened, and tended to thrust the former out of the acetabulum. ('St. Barth. Hosp. Rep.,' x, 287.)

*Reduction of dislocation of the femur.*—In the sixth number of the "Upsala Proceedings," P. Söderbaum reports a case of iliac luxation of the right femur, which he reduced after Prof. Westerton's method without chloroform. "The patient was laid on a low sofa having a wooden back, with his right leg to its far side; a strong farm servant placed one of his hands on the anterior superior spine of each ilium, and was ordered not to let these two points be disturbed from their position. The patient's leg was then fixed almost at a right angle; I placed my right knee in his popliteal space, with my right foot resting against the back of the sofa, and my right hand grasping the injured limb immediately above the ankle. I now raised myself slowly, but firmly, on my toe, when a loud scraping announced that the head of the bone was moving. It then became possible to rotate the foot outwards, so much that the toes pointed directly forwards, and the faulty position of the limb generally was improved. It was now supposed that the head of the bone lay on the brim of the acetabulum. Having again placed my right leg so that the entire sole of the foot rested against the back of the sofa, I once more raised myself on my toe, bringing my knee at the same time beyond the edge of the sofa. By this manœuvre abduction was caused, during which, with a violent jerk, the head of the bone shot into the acetabulum, the position of the limb becoming quite natural, and the foot sinking down of its own accord on its outer side." The patient was a man, æt. 56, and the accident had occurred eight days before the reduction was effected. ("Report on Scandinavian Medicine," 'Med.-Chir. Rev.,' July, 1873.)

*Fracture of the neck of the femur.*—A recent specimen of fracture of the neck of the femur was exhibited by Dr. Wharton to the Path. Soc.

A woman, who had fallen on her hip, was admitted into hospital with very slight shortening of the limb and slight eversion. The capsule was almost entire and held the fragments in position. ('Dub. Journ. Med. Sci.,' June, 1873.) Dr. Bishop describes a case treated by a wire splint, bent at hip, knee, and ankle, and figures the splint. ('Am. Journ. Med. Sci.,' July, 1874.) Prof. R. W. Smith describes two specimens of united impacted intra-capsular fracture of the femur (with illustrations). ('Dub. Journ. of Med. Sci.,' Jan. 1873.) Dr. Zach. Johnson figures a splint, &c., which he has devised for the treatment of fractures of the femur. The splint is fastened to the thigh, either inside or outside, for counter-extension, and then extension made by a screw fixed to the lower end of the splint, and acting on a foot-piece in such a way as to draw down the leg.

*Spontaneous fracture of the femur from caries; bony union.*—A. Rosenberger describes in the 'Berliner Klinische Wochenschrift' (April 6, 1874) the case of a boy, æt. 14, who, without any apparent cause (except much exertion of the legs in walking and standing), was seized with severe pain in the lower part of the left thigh; this was followed in four days by swelling and pain. At the end of nine days a deep abscess was opened; the bone above the knee was denuded of periosteum to a great extent, and bathed in pus. The suppuration continued, with fever, for about four weeks; then there was some improvement; and then again a return of the fever. The opening that had been made was enlarged, and it was found that the bone above had become nearly covered with periosteum, and that the abscess cavity had disappeared; but the bone was broken through about three inches above the knee. Slight suppuration followed, but the fever was very severe for some days. Six weeks later, complete bony union had taken place; there was still, however, a fistula leading down to carious bone.

*Treatment of transverse fractures of the patella.*—Mr. C. J. Manning writes on a plan of treatment he has devised. The apparatus (figured) consists of a back splint with foot-piece, some cross strips of strapping fastened to a long band of calico pass behind the thigh, knee, and leg. The cross strips are fastened over the thigh in front. The calico passes through a slit in the splint, and has a bar of wood at the end. Another bar of wood is attached lower down on the splint. Then by approximating these two bars the strapping above the patella is drawn upon and pulls down the upper fragment. The force used consists of elastic bands passed from one bar to the other. The limb is bandaged to the splint. The author considers the ordinary plan causes pressure on the vessels supplying the patella, and often leads to imperfect union. He figures the distribution of vessels. ('Lancet,' Feb. 28, 1874.)

*Transverse fracture of the patella without separation of the fragments.*—Dr. Curtis Smith records the case of a man æt. 51, who fell heavily on his right knee in consequence of a slip while walking on ice. He walked a short distance afterwards. When examined, a transverse fracture of the patella was found, the fragments being still in close contact, the upper one elevated above the level of the lower piece. The leg was then semiflexed, the patient sitting in a chair. Extension of

the limb rather increased the relative elevation of the upper fragment. Flexion of the knee nearly to a right angle brought the fragments in exact coaptation. There was also a fracture through the external condyle of the femur, the line of fracture being semilunar in shape. There was but slight displacement of this fragment, and but slight pressure required to return it to its proper place. The broadest portion of this condyloid fragment was three fourths of an inch in width, and extended to its articular surface. The leg was ordered to be semiflexed and at rest. This order was not obeyed at first. Ultimately no observable deformity was left from either fracture. ('Am. Journ. Med. Sci.,' April, 1873.)

*Dislocation of the patella on its edge.*—Mr. Southam records a case in a male æt. 20. The accident was caused in struggling. Very great pain was experienced. The outer border of the patella rested on the upper and outer side of the external condyle. The bone slipped into place on flexion of knee, nearly to a right angle, under chloroform, after previous extension. ('Liverpool and Manchester Med. and Surg. Reports,' 1873, p. 95.)

*Latent syphilis preventing union of a fractured tibia for upwards of seven months; rapid recovery under specific treatment.*—The patient was a man, æt. 30, under the care of Mr. Barnes, of Liverpool. ('Lancet,' Nov. 1, 1873.)

*On suspension in the treatment of fractures of the leg.*—Dr. Packard writes an article on this subject, pointing out the different methods adopted for suspending. ('Am. Journ. Med. Sci.,' April, 1874.)

*Compound dislocation of the ankle.*—Mr. Ker records the case of a man, æt. 40, who came under care for a compound dislocation of the tibia and fracture of the fibula. Two inches of the tibia protruded through a wound on the inner side. The protruding part of the articular portion of the tibia and the lower end of the upper fragment of the fibula were sawn off. In the seventeenth week the patient could stand without support. ('Brit. Med. Journ.,' Jan. 3, 1874.)

*Compound dislocation of the astragalus; excision of the bone.*—A case is noted under the care of Dr. P. H. Watson. The accident which occasioned this lesion was incurred while the patient was stepping on the ground from his carriage; the horses moving forwards, his weight was thrown suddenly upon the anterior and outer part of the foot. The bone had evidently been wrenched away anteriorly from the scaphoid bone and inferiorly from the calcaneum, and its anterior surface forced out through an opening in the cutaneous textures between the external malleolus and the external margin of the extensors of the toes, whereat the astragalus projected. On manipulation the bone was found to be only attached to the extremity of the tibia and fibula by the capsular ligament of the ankle. The bone was excised. The patient's progress subsequently was quite satisfactory. ('Edin. Med. Journ.,' June, 1874.)

*Sub-astragaloid dislocation of the foot.*—Mr. Mac Cormac writes a paper on this subject. After enumerating the various dislocations to which the astragalus is liable, he narrates four cases of sub-astragaloid dislocation of the foot which have come under his observation. The first case was that of a man, æt. 25, who fell from a ladder, his foot

getting caught in the ladder-rungs, and being violently twisted inwards. The position of the foot is shown by illustrations. It was violently twisted inwards and adducted (talipes varus). The outer malleolus was very prominent, the inner concealed. Neither was fractured. The rounded head of the astragalus, completely dislodged from the scaphoid, was resting subcutaneously over the calcaneo-cuboid articulation. The skin covering the head was so tensely stretched that a circular slough was subsequently formed at the spot. The finger, on being passed upwards beneath the external malleolus, readily felt the cartilaginous surface of the large posterior articulating facet of the astragalus. Its external margin rendered the skin very tense. The interosseous ligament must have been ruptured. The tuberosity of the scaphoid stood out prominently. The foot could be slightly flexed and extended on the ankle, and further adducted; but it could not be moved towards its natural position. Under chloroform, the knee and hip being flexed, the foot, partially extended, was then steadily pulled upon, with one hand on the heel and the other on the instep, while the head of the astragalus was pressed on. After a time the foot slipped outwards with an audible snap. The patient recovered well. In two other similar cases reduction was not effected. In one the astragalus was excised a month subsequently, the patient recovering; and in the other, excision about the same period was followed by improvement for a time, the patient ultimately sinking. The fourth case was compound, and there was fracture of the neck of the astragalus. The body of the bone was removed, but the head was left. Sloughing of parts damaged and formation of abscesses followed, but the patient made an excellent recovery. Mr. Mac Cormac prefers to divide luxations in the region of the ankle into tibio-tarsal, sub-astragaloid, and dislocation proper (or enucleation) of the astragalus. When the foot is violently twisted outward, the joint most likely to give way is the tibio-tarsal, and therefore we find the ankle displaced inward, and inevitably (in the complete form) fracture of the fibula. The shallow depth of the internal malleolus favours the dislocation (of the ankle) inwards, while the strong astragalo-scaphoid ligaments resist any tendency of the head of the astragalus to leave the scaphoid in that direction. When the foot is inverted and adducted the malleoli very often do not yield, the body of the astragalus remains locked in place, and the sub-astragaloid form of luxation is produced. The head of the astragalus is first forced from the scaphoid, then the interosseous ligament gives way, or the neck of the bone may be fractured. The author discusses the treatment and the opinions and cases recorded. Attempts should be made at reduction, and if these do not succeed, tendons may be divided, and if still reduction is not effected the case should be left till the head of the astragalus is exposed by sloughing, and then the whole bone should be removed secondarily. If the neck is fractured the head should be left. Generally anchylosis follows. In a few cases the foot may be so movable at the ankle as to be useless. The surgeon, in cases of sub-astragaloid dislocation, must expect sloughing of soft parts and the formation of abscesses. ('St. Thomas's Hospital Reports,' iii, 1872, p. 83.)

*Mechanical appliances for the treatment of fractures of the jaws.*—Mr.

Henry Moon describes and figures apparatus for the treatment of fractures of the jaws, especially the lower jaw. He strongly advocates the application of splints *within* the mouth. He mentions cases in which fractures treated in the usual way have failed to unite, whereas when properly cared for these united well. The best material with which to take impressions of the jaws is "Stent." Interdental splints may be of vulcanite or metal. "Dental alloy" answers very well. Mr. G. E. Hammond's plan is described and spoken of with favour, It consists in adapting a frame of strong iron wire to the jaw; it is bent round so as to encircle in one loop all or any desired number of the teeth at the level of their necks. The ends of the wire are soldered together, and the finer adjustments are given to the frame with a pair of small curved pliers. This collar is slipped over the teeth and is tied in place by short pieces of thin binding wire passed round *each* tooth and interlaced with the frame (as shown in a figure). The two ends of each of the binding wires are twisted together in front until nearly tight, and are afterwards twisted quite tight, a loop on each side alternately being tightened up, so that even pressure may be excited. The ends of the wire are then cut off, and the remaining twisted ends are tucked in between the teeth. A spirit wash is used for rinsing the mouth. The frame should be worn for six weeks. ('Guy's Hospital Reports,' xix, 179.)

*Luxation of the superior maxillary bones.*— Dr. Wilbur records a case in which, after a severe blow on the head, both superior maxillary bones were found to have been loosened from their connections and to have dropped down. No bandage could be kept applied, and the case was left to nature. The result was very good, no perceptible deformity resulting. ('Am. Journ. Med. Sci.,' April, 1873.)

*Fracture of the lower jaw.*—M. Montet describes two cases of fracture of the lower jaw in the 'Montpellier Médical' for April, 1874.

In the first case there was a double fracture of the body of the bone, and the middle portion was much displaced. About a fortnight after the injury, seeing that there was no tendency to union, and that the fragments could not be kept in a sufficiently immovable condition, M. Montet applied some bands of india rubber nearly as in the case of an ordinary bandage, holding them in place by other bands, by which the head was fixed. The result of this was to render the fractured part completely immovable, and at the same time to allow some movement of the jaw. Consolidation took place; but the sensibility of the lip, which was entire at the time of the accident, was gradually lost during the formation of the callus.

The second case was one of comminuted fracture of the jaw from the kick of a horse, complicated nearly from the first with intense delirium. After having in vain tried all the ordinary bandages as well as that above described, M. Montet determined on practising suture of the fragments by means of a silver wire passed round the bone. This was easily performed, and there was no need to perforate the fragments. Good coaptation was obtained; and, when the wire was removed at the end of a month, consolidation was nearly complete, and all trace of displacement had disappeared.

*Disarticulation of the inferior cornu of the thyroid cartilage.*—Dr. Holden records the case. The patient was a man, æt. 52, robust and active. He received a blow or kick on the throat. Twenty-five days later laryngoscopic examination showed the arytenoid cartilage of the right side drawn upward and inward, the vocal cord coming but slowly up to the median line during phonation, and both falling helplessly back against the laryngeal wall immediately after the effort. Almost complete anæsthesia of the larynx existed. On external examination no fracture could be detected, but one point seemed to stick out, and this was the lower cornu of the thyroid detached from its articulating facet. The voice was very weak, but manifestly improved when the head was bent forcibly over toward the sound side. All effort at reduction proved unavailing. Anæsthesia and subcutaneous section of the crico-thyroid muscle seemed to offer the best prospect, but the man was lost sight of. ('Am. Journ. Med. Sci.,' Jan. 1873.)

*Silicate of soda bandage.*—Mr. Wagstaffe describes a new form of fixed bandage which he finds useful. The limb is encased in cotton-wool, &c., then a common binder is applied and the silica is painted over. Three layers of bandage and silica are on the average necessary. The bandage is allowed to dry and sets firmly. The silicate is used as prepared in the manufacture of soap. The bandage does not contract in drying. It is light, clean, and strong. In children it is well to varnish over the surface after a day or two. The silicate is soluble in water and therefore can be removed easily. A good plan also is to mix as much whitening with the silicate as to make the fluid of the consistence of butter. This mixture sets to a very hard consistence. It can be cut up with strong cutting pliers. Starch may be used instead of whitening, and the mixture is more pliable. The simple silicate answers for most purposes. ('Med. Times and Gazette,' March 7, 1874.)

*On the treatment of luxations by Robert's modification of Jarvis' adjustor.*—Mr. W. Stokes narrates his experience of reducing dislocations by Robert's modification of Jarvis' adjustor. Figures of the apparatus in position are given. The amount of force used is known and the direction of the force can be altered without relaxing its amount. ('Dub. Journ. Med. Sci.,' Aug. 1873.)

*Cases of compound fracture successfully treated on conservative principles.*—Cases under the care of Mr. Callender are narrated in which recovery followed severe compound fractures. ('Lancet,' Jan. 31, 1874.)

*Dislocation of the occipital bone from the atlas and axis.*—A case is noted in the 'St. Barth. Hosp. Rep.,' x, 313.

*Dislocation between the second and third cervical vertebræ; partial paralysis; death on the fourth day.*—The notes of a case of dislocation between the second and third cervical vertebræ in which the patient, a man æt. 34, lived till the fourth day, are given in 'Lancet,' Aug. 1, 1874, and also some remarks thereon by Mr. Erichsen. On admission there was paralysis of the left deltoid and impaired power of supination of left fore-arm (circumflex and musculo-spiral). All the movements of the lower extremities were perfect and the patient had complete

power over his bladder. He became restless and threw his limbs about, and died on the fourth day while struggling. At the post-mortem a dislocation of the second from the third cervical vertebra was found. Mr. Erichsen remarks on the great rarity of the case. There were no head symptoms nor any general paralysis. The dislocation was uncomplicated with fracture. Stress is laid on the absence of any hyperæsthetic line as showing dislocation rather than fracture, because the broken sharp edges irritate the spinal nerves.

*Fractures of the vertebral column with injury to the spinal cord.*—Mr. Hulke details cases and remarks on them in a clinical lecture. ('Med. Times and Gazette,' Feb. 14 and 28, 1874.) He records a very interesting case of *recovery after fracture of the dorsal spine.*

*Dislocations of the first and second pieces of the sternum.*—Mr. Rivington writes on this subject. He details cases, quotes authors on the causation of these injuries, and enters minutely into the anatomy of the joint between the manubrium and the gladiolus, following more especially M. Maisonneuve. Out of 100 specimens he has himself examined, 51 showed an amphiarthrodial, 32 a diarthrodial, and 11 an intermediate variety of joint, and 6 had undergone ossification. Of the amphiarthrodial, 26 occurred in adult males; 17 in adult females; 4 in boys, and 4 in girls. Of the diarthrodial, 22 in adult males; 9 in adult females, and 1 in a boy. Of the ossified ones, 4 were taken from adult males (æt. 30, 36, 53, and 65); 2 from adult females (æt. 73 and 76). Of the "intermediate" joints, 9 occurred in adult males, and 2 in females. The following summary is given: 1. The frequent presence of an arthrodial joint between the manubrium and the gladiolus favours the occurrence of displacement in preference to fracture. In other words, the ligamentous fibres keeping the ends of the manubrium and gladiolus in contact are generally weaker than the weakest part of the bone. Whenever the contrary is the case, fracture will occur in preference to dislocation. 2. Separation of the manubrium and the gladiolus may occur from forcible flexion of the dorsal spine, and is most likely to occur when one or more of the dorsal vertebræ is crushed or fractured. Fracture may result from the same cause. 3. Separation of the manubrium and the gladiolus may occur from forcible extension of the dorsal spine, as, for instance, from falls or blows on the back, or muscular action. Fracture may also occur from this cause. 4. Both in flexion and extension of the spine, the sternum is acted on through the ribs, and the greater length and leverage of the lower ribs causes the gladiolus to be thrust forwards in front of the manubrium. 5. Many cases of fracture or dislocation attributed to direct muscular action or to counterstroke were due to the leverage of the ribs brought into action by violence applied to the back. 6. Fracture of the sternum, but scarcely dislocation, might be occasioned by violent descent of the chin on to the sternum, and this might occur in injuries to the *cervical* portion of the spine. 7. The anatomy of the joint between the manubrium and the gladiolus explains several circumstances noted in pathological specimens, such as the presence of a distinct layer of cartilage covering the ends of each segment, the adhesion of the second costal cartilages to the manubrium, the rupture

of the anterior layer of periosteum and the stripping up of the posterior layer of periosteum as far as the third pair of ribs. 8. The diarthrodial form of joint has been more frequently met with by himself in males than females, and this concurs with the greater exposure of males to violence of all kinds in favouring dislocation in preference to fracture. The author differs from M. Maisonneuve in regard to the part played by the clavicle in producing displacements of the sternum. ('Med.-Chir. Trans.,' lvii, 101.)

*Wounds and injuries of the head.*—In the 'Surgical History of the War of the Rebellion,' published by the American Government, and compiled by Geo. A. Otis, will be found a detailed report on the injuries of the head received by the troops. An abstract is given in the 'American Journal of the Medical Sciences' for July, 1873. We may mention that forty-nine cases are recorded in which the skull was fractured by a sabre or other cutting weapon. Of these, thirteen proved fatal, death resulting in ten instances from intra-cranial inflammation or compression, in one from epilepsy, in one from tetanus, and in one from pyæmia. Removal of fragments was effected in eleven cases, of which only one resulted disastrously, thus confirming the observation that the greatest comminution of the skull is often attended with the least injury of the brain. The prognosis in cases of incised fracture appears to vary in a marked manner with the particular part of the skull affected; sabre wounds of the top of the head are much less dangerous than those of its lateral portions. The proper treatment to be pursued when parts of the skull are sliced away and the detached fragments adhere to flaps of integument which have not been completely separated from the rest of the scalp is fully discussed. Dr. Otis concludes that, although the dangers likely to result from allowing the flap of bone which adheres to the scalp to remain have probably been exaggerated, yet that it is, upon the whole, safer to remove the osseous fragment if it can be readily detached. All portions of the scalp should be preserved. Of six cases of punctured fracture of the cranium all but one ended fatally. Dr. Otis advises that operative interference should not be resorted to in these cases, until it is certain that the brain, or its membranes, is actually implicated. In seventy-nine cases of fracture of the skull (from various causes; not gunshot) treated without operative interference the death-rate was 54·4; of twenty-six operated upon, the ultimate results are ascertained in 23, in which the mortality rate was 60·8. The gunshot cases are too numerous to note here. Of sixteen cases of operative interference in contusion of skull, four only had a favorable termination, and these were examples of the secondary removal of exfoliated fragments. In the twelve remaining fatal cases in which formal trephining was resorted to, pus was found between the skull and the dura mater in four instances, beneath the dura mater in one case and in the substance of the brain in one; intra-cranial extravasation in two, in another arachnitis, in three cases the causes were not mentioned. The patients survived, on an average, about three days. Dr. Otis is disinclined to admit that "the outer table of the skull is ever fractured in the adult without injury to the inner table, either by projectiles of war or any other external violence." Twenty cases are recorded in

which the internal table was fractured alone. Of these, all but one proved fatal. In that one case exfoliation occurred and the nature of the injury was demonstrated. Dr. Otis thinks the use of the trephine "undeniably justifiable" in the event of the persistence of urgent symptoms of compression, and particularly if there is paralysis of the side opposite to that of the injury. Eight out of twelve cases here reported, however, in which trephining was practised, proved fatal, while the only patient who is positively known to have recovered from this injury during the war was not trephined. All the cases of trephining in gunshot injuries of the head are recorded. Besides those for contusion already mentioned, there are given 95 cases of trephining for gunshot fracture which proved fatal; 24 which resulted in recovery, with various degrees of disability; 15 in which the patients recovered sufficiently to resume their military duties; 4 in which the patients were placed on modified duty; 6 in which they exchanged, &c., and 36 in which patients were discharged from the service. Comments are reserved for a separate report in the next volume. Of 61 cases of hernia cerebri, only 11 terminated in recovery. Fracture by contre-coup is discussed at length. A table of 911 cases of injury to the skull in which some operation was performed is given. Extraction of missiles, 175 cases with 89 recoveries, 83 deaths, and 3 undetermined. Ligatures of arteries, 33 cases with 21 recoveries, and 12 deaths. Removal of bone splinters or elevation of depressed bone, 454 cases with 275 recoveries, 176 deaths, and 3 undetermined. Formal trephining 229 cases with 101 recoveries, 126 deaths, and 2 undetermined. Operations for hernia cerebri, 29 cases with 7 recoveries, and 22 deaths. In the cases of trephining, most recoveries occurred the longer the operation was postponed. The common carotid was tied in seven instances of injuries to the head, each time unsuccessfully. The same vessel was tied 54 times in cases of face wound, and 23 times in cases of wound in the neck or spine, giving a total of 84 examples of this operation with 63 deaths. In 186 instances, balls penetrated the cranial cavity; in 85 instances, the foreign body was removed with 43 recoveries and 42 deaths; in 101 instances, the foreign body was not removed, only 42 of these ending in recovery, while 59 proved fatal.

*Compression of the brain as met with in army practice.*—Dr. S. W. Gross, of Philadelphia, has a detailed article on this subject in the 'Am. Journ. of the Med. Sci.,' July, 1873. The agents which induce the phenomena of compression, and which exert a most decided influence on the question of the propriety of surgical interference, may be divided into two classes—first, those which call forth early symptoms; and, secondly, those which excite late symptoms. The former are sufficiently voluminous to diminish the intra-cranial space, thereby compressing the tissues of the brain and driving out its normal fluids, while the latter act rather as foreign bodies and sources of irritation, which, while they do not encroach materially on the cavity of the skull, equally lead to disturbances of the cerebral circulation, through irritation of the vaso-motor nerves, or spasm of the vessels, or through changes effected in the connected nervous centres. When the com-

pression depends on the first class of causes, as an extensive depression of bone or a large clot of blood, surgeons are agreed as to the propriety of operative measures; but when it is produced by an insignificant foreign substance, as an osseous spicule, or a few drachms of pus, they are not so unanimous in this regard. In the former case the importance of relieving a true source of pressure is fully recognised; but in the latter it appears to the author that another equally weighty object in interference is too much overlooked, namely, the removal of a source of irritation. A small collection of pus, a ball, a fragment of bone, does not awaken primary symptoms of compression, but these are preceded by signs of irritation. Among the most reliable phenomena of suppurative meningitis, after gunshot injury of the skull, for example, are intense headache, high febrile action, convulsions and delirium—a group of signs which point to exalted sensibility and mobility of the nervous centres. Unless this condition be relieved, hemiplegia, dilated pupils, retarded pulse and coma rapidly follow. The same is true of a small abscess of the cerebrum in which the symptoms of paralysis of the motor and sensory ganglia are certainly rather ascribable to changes induced in the surrounding tissues than to pressure. Hence the question of operation in certain cases should be based on phenomena which are not really those of compression. In suppuration of the membranes, or of the substance of the brain, the aim of the surgeon should be to anticipate consecutive trouble and to get rid of a localised source of irritation, thereby preventing the extension of the inflammatory process. The symptoms of compression are said to be profound insensibility, and paralysis of motion and sensation as denoted, briefly, by utter unconsciousness, opposite hemiplegia, and anæsthesia, full, slow, or laboured pulse, dilated and fixed pupils and stertorous breathing. 1. Compression from extravasated blood. Less often met with in army than in civil practice. The different forms are gone into in detail. In six cases the symptoms appeared at a period varying from twenty to thirty minutes to several hours; in one on the third day, and in one they were delayed till the sixteenth day. In all these there was rupture of the middle meningeal artery. In four instances in which the blood was between the dura mater and the bone, but came from many points, the symptoms set in in a few minutes, and in three they were delayed respectively until the third, sixth, and sixteenth day. The symptoms of this form of compression are characterised by not being immediate. The hæmorrhage occurs during reaction. If the quantity be large, the symptoms follow quickly; if small, the brain accommodates itself. One pupil may be dilated owing to pressure on the third nerve by the clot, as pointed out by Mr. Hutchinson. Contusion and laceration may produce symptoms similar to those of compression. It is very questionable whether a large effusion is ever absorbed. Surgical interference is therefore indicated. If the dura mater does not rise up into the aperture made by the trephine it is a very unfavorable sign. In seven cases in which trephining was resorted to for laceration of the middle meningeal artery only one patient recovered; whereas in seven cases in which the small vessels gave rise to the hæmorrhage, five patients recovered. Cases

are quoted in detail. Extravasation into the arachnoid sac is scarcely to be distinguished from that between the dura mater and the bone. Possibly the pulse is rapid, small, or feeble; rather than slow, full, or laboured, while the breathing is at most noisy and unaccompanied by stertor. Mr. Hutchinson's observation is confirmed that the marked inequality in the size of the pupils is rarely present, and the hemplegia is not so decided. 2. Compression from effusion of pus. This is by far the most frequent form of compression. The question is entered into fully. As to the question of distinguishing where the pus is, the author says, that when pus is formed between the dura mater and the bone, the symptoms never appear before the sixth day, rarely before the eleventh, and usually prior to the expiration of the second week, the average being the thirteenth day. There is some apparent reason for the local collection, as a contused or lacerated scalp, &c.; a puffy tumour; when there is an open wound this assumes an unhealthy appearance. The symptoms are not so well marked as when the matter is deeper; shortly they are the state of the wound, fixed headache, partial stupor, and incomplete paralysis—symptoms of suppurative meningitis. The most reliable symptom, as recognised by Dr. Wilks and Mr. Hutchinson, of unilateral arachnitis, is opposite hemiplegia succeeding rigors, intense headache, elevation of temperature, vomiting, delirium, stupor, convulsions and followed by coma. In abscess of the brain the symptoms never appear before the thirteenth day, and are most frequent between the fifteenth and twenty-seventh days, the average being the twenty-fifth. The cephalalgia is sudden, of a dull, heavy nature, the special senses are suddenly perverted, the delirium is of a quiet character; sopor, one-sided convulsions, incomplete hemiplegia, and coma succeed each other more rapidly and more constantly than in other forms of pus effusion. The stupor is complete, the patient does not lie with limbs outstretched, but curled up; general sensibility is utterly abolished. Profound coma and total destruction of special and general sensation are characteristic of this condition. When an abscess bursts into a lateral venticle, it is usually rapidly fatal. Surgical interference alone offers any hope of life, but that is but small. The operation should be undertaken early. Notes of cases compiled from published records are given. Effusion of pus into the "arachnoid sac" is indicated by the immediate rising of the dura mater, which has lost its pinkish, silvery hue, into the hole made by the trephine, where it forms a tense swelling devoid of pulsation. No case is recorded of recovery from effusion of pus into the arachnoid cavity without its having been let out; it is never absorbed in this situation; on the other hand, if a free incision be made into the dura mater so as to admit of its ready escape, one half of the patients fight their way through. If symptoms indicate abscess of the cerebral substance this should be incised. Of the individual symptoms of cerebral abscess, the best are defined and intense pain, corresponding with the local lesion, and the occurrence of limited hemiplegia and convulsions some time between the fifteenth and twenty-seventh days. Headache ordinarily corresponds to the seat of abscess, and this is the most important sign of its position; while the more the pus encroaches

on the grey cortical substance, the more weighty and numerous will be the phenomena. 3. Compression from depressed bone. Generally complicated with some other conditions. It is of the utmost practical importance to remember that depression of the skull may, and usually does, excite remote phenomena, when no signs of compression have immediately followed the injury. The phenomena do not depend entirely on the depression. When the compression sets in at a period varying from thirty minutes to eighteen or twenty hours, there having been a lucid interval, it is due to effused blood, which, starting from the seat of depression, gradually extends over the dura mater until a clot of sufficient size to awaken symptoms is formed. If headache, more or less pronounced, febrile movement, exalted nervous irritability, as indicated by intolerance of light and of sound, and slight delirium, or other signs appear at any time between the second and sixth day, seventy-two hours being the average, they are induced by hyperæmia of the brain and its membranes, this state, unless held in subjection by appropriate means, passing rapidly into that of inflammation, and there will be found either depression or the trifling displacement will be combined with a small local clot. When the symptoms of cerebral disturbance depend upon the formation of pus, they are usually ushered in by rigors, more or less defined, and set in at a later period; not before the sixth day, rarely before the eleventh, and generally prior to the expiration of the second week, the average being the thirteenth day. In intra-cerebral abscess, the most frequent of all causes of secondary compression, they do not manifest themselves before the thirteenth day, may be delayed for months, and are most common between the fifteenth and twenty-seventh days, the average being the twenty-fifth. The author is in favour of surgical interference in fractures with depression and comminution, be they simple or compound, the degree of irritation from pointed fragments being very great. 4. Compression from foreign bodies. Generally due to secondary causes. A ball or section of a ball lodged in the dura mater excites more irritation generally than when lodged in the white brain substance. In any case the indication is to remove the intruder. A tuft of hair carried into a fissure is a valuable indication of some foreign body having penetrated.

*The non-existence of pressure on, or compression of, the brain.*—Mr. Neil Macleod writes on this subject. He maintains that when depressed bone, pus, or blood, &c., diminishes the capacity of the skull, the blood is driven out to a corresponding extent; but there is no compression of the brain. There is diminished blood supply. ('Edin. Med. Journ.,' July, 1874.) In the August number there is a paper by Dr. James Cappie on the relation of the cranial contents to the pressure of the atmosphere. He quotes Dr. Kellie's observations in 1822. He criticises Mr. Macleod's views.

*Punctured fracture of skull opening longitudinal sinus in a child, aged three years; probe passed down to corpus callosum; recovery.*—Under the care of Mr. Sydney Jones. ('Lancet,' Aug. 22, 1874.)

*Some points in the mechanism of the cranium considered with reference*

*to the causation of fracture.*—Dr. Allen writes a suggestive paper on this subject. He especially calls attention to parts of the skull (diploë, &c.) which exercise a shock-distributing effect. ('Am. Journ. Med. Sci.,' Jan. 1874.)

*Pyæmia and abscess of diploë after a scalp wound; trephining; cure.*—Mr. Joseph Bell records the case of a farmer who had been thrown from his gig and sustained a severe scalp wound near the vertex, exposing the bone. The wound healed in six days. Seven days later he had high fever, intense dyspnœa, recurring rigors, a pulse of 92, and a temperature varying from 102° to 104·4°. A probe led through a small opening to bare bone. Suppuration of the diploë was diagnosed and a portion of bone removed with the trephine. Pus oozed out from the centre of the bone. The dura mater was sound and healthy. The patient recovered well. ('Edin. Med. Journ.,' Aug. 1873.)

*Abscess of right hemisphere of brain superficial to ventricle, following a blow on the skull without fracture; dilatation of right pupil.*—The patient, a man, æt. 26, was admitted into the Lambeth Workhouse under the care of Mr. R. H. Lloyd, suffering from hemiplegia on the left side. There was a cicatrix of a wound in the centre of the mesial line of the skull. The left pupil was contracted, the right one dilated. One month previously he had received a blow from a poker, which made him insensible. He subsequently had "fits." At the end of seventeen days loss of sensation and motion in the left hand and arm was noticed and gradually spread to the leg. Sixteen days later he had a convulsive seizure and soon became insensible, the right pupil becoming dilated. The latter symptom remained, and paralysis of the right levator palpebræ was noticed. He recovered consciousness to some extent. He died thirty-days after the accident and three weeks after the first symptoms of hemiplegia. At the post-mortem the dura mater was found firmly adherent to the part corresponding to the cicatrix and no fracture could be detected, but there was a small patch of lymph (organized) on the highest part of the middle lobe of the right hemisphere. A large abscess was found in the right hemisphere occupying the roof of the lateral ventricle. It did not involve the latter. ('Lancet,' May 17, 1873.)

*Abscess in the brain; pus let out by the trephine; recovery.*—Mr. Holden narrates the case of a lad, æt. 18, who was struck on the side of the head by a piece of iron. He was admitted into St. Bartholomew's Hospital, and a laceration of the scalp in the left parietal region was found, leading to a line of fracture with slight depression. Small portions of brain substance were escaping through the wound. He had no cerebral symptoms. In three weeks he was made an out-patient. Subsequently some pieces of bone worked out. At the end of five months he went to work. Some months later he had a fall, which was followed by fits. About eighteen months after the accident he had giddiness, pain in the head, was stupid, and felt ill. He was quite deaf in the left ear. Then he had a shivering fit. During the next two months he became more and more unconscious. His pulse was about 60° and his temp. 104°. It was determined to trephine. A small hole was found through the frontal bone. The dura mater was divided,

as no matter was found outside it, and turned back. The brain bulged up and seemed tense and elastic as if matter were confined below. A bistoury was quickly plunged in. Instantly a column of extremely fetid pus spouted to a height of several inches. The relief was immediate. The amount of pus was estimated as five ounces. He gradually recovered and was apparently in excellent health and good condition intellectually five months after the operation. ('St. Barth. Hosp. Rep.,' ix, 96.)

*Trephining in depressed fracture.*—Mr. Savory, in a clinical lecture, discusses the question of trephining in depressed fracture of the skull. In fractures without depression and without symptoms, whether simple or compound, no operation is advisable. In a simple fracture with depression, but without any symptoms of compression, non-interference is the rule. If the fragments have been driven in endways or edgeways it is generally expedient to operate in order to obviate or render less likely any remote effects (inflammation, &c.). If there be a wound the treatment is the same, the operation being rendered more obvious and easy than in the last case. If symptoms are present without depression, &c., it is difficult to decide on the proper treatment. It is well to wait awhile and watch the symptoms. When both depression and symptoms of compression are met with the rule is, perhaps, even when the fracture is simple, to cut down and raise the depressed portion. There is one form of fracture in which the rule is constant to trephine at once. This is the punctured fracture, in which the inner table is much comminuted. The operation is performed in order to prevent, if possible, the irritation and inflammation almost sure to be set up by the small and often sharp splinters which are formed. Mr. Savory says children's brains bear the irritation of depressed fragments much better than adults do. The "power of accommodation" is greater in the child. The injured part is able to adapt itself to the altered conditions far more quickly than at a later period of life. ('Lancet,' Aug. 1, 1874.)

*Cutting forceps versus trephine.*—Mr. Maunder calls attention to the advantages of Hoffman's cutting forceps in removing overhanging bone in cases of compound depressed fracture of the skull. Sound bone is thus saved rather than by using a trephine. ('Lancet,' June 27, 1874.)

*A case of traumatic epilepsy successfully treated by trephining.*—Dr. Dickson related the case of a lad, æt. 16, who had suffered from epileptic attacks for four years after a blow on the left parietal eminence from a fall. The fits commenced a week later and recurred almost weekly. There was a cicatrix on the left temple, which was often painful. Mr. Bryant trephined the skull, removing a portion of thickened bone. Great relief followed. ('Lancet,' June 7, 1873.) In another case the patient, a man, æt. 39, was under the care of Dr. Wilks and Mr. Cooper Forster. Nine years before he had received a blow on the spine, and four months before on the top of the head. There was a slight swelling remaining, and when this was incised, five days after admission and six after the onset of the fits, some pus escaped, but no relief to the fits followed. Three

days after this the skull was trephined to the right of the middle line. The piece of bone removed was rough and excavated on its external surface, very dense, and increased in thickness. He had no fits afterwards. ('Lancet,' Aug. 30, 1873, and 'Guy's Hosp. Rep.,' xix, 21).

*The value of palpebral and sub-conjunctival ecchymosis.*—Mr. Clement Lucas contributes an article on this subject. After some preliminary observations he says, "Beneath the palpebral portion of the orbicularis muscle lies the palpebral ligament, a membrane of considerable interest in the present inquiry, since it is of sufficient density to obstruct, for a time at all events, the passage of extravasated blood. It is attached peripherally to the margin of the orbit and centrally to the anterior surfaces of the tarsal cartilages near their free edges. Blood extravasated as the result of a blow upon the margin of the orbit, or gravitating into the lids after a contusion of the forehead, nose, or temple, will lie superficial to this structure; whereas blood poured out into the cellular tissue of the orbit from fractured skull, or other causes, will show itself beneath the conjunctiva and internal to or beneath this fibrous septum. It becomes, therefore, a matter of very considerable importance in diagnosis to determine whether blood extravasated into the lids superficial to the palpebral ligament is capable of making its way to the ocular conjunctiva and *vice versâ*." "I think I shall be able to show that blood may, without much difficulty, find its way from the lids to the ocular conjunctiva at one particular point, and that, therefore, no very definite conclusions can be drawn from the apparent limiting action of the palpebral ligament." He first of all noticed that in a patient who had received a blow on the forehead both eyelids of both eyes became distended with blood and then the ocular conjunctiva became affected, the blood passing in a direction from the outer canthus towards the cornea. Repeated observations have tended to confirm this conclusion—that extravasated blood finding its way into the lids in any considerable quantity will commonly make its way beneath the conjunctiva of the eyeball, and that it does so at a definite fixed point by running in at the outer canthus in a horizontal direction towards the cornea. The experiment of injecting ink and water was tried and the result was the same. "The explanation of the course taken by fluids when injected or extravasated into the upper eyelid is very simple. The skin of each lid forms with the palpebral conjunctiva a fold, into which the palpebral ligament and tarsal cartilage dips so as to form a diaphragm, which separates the superficial areolar tissue and orbicularis muscle from the areolar tissue of the orbit. The margin of the fold is so pinned, as it were, along its greater part to the subjacent tarsal cartilage by the insertion of the roots of the eyelashes and the Meibomian glands that no fluid can pass by to the under surface of the septum. But at the outer canthus the skin is only loosely attached to the underlying parts and the fluid is able to pass round the external tarsal ligament, and so reach the ocular conjunctiva. Its further horizontal course towards the cornea is probably determined by the conjunctiva being less firmly attached to the equator of the eye than elsewhere, and also to the absence here of the pressure of the lids during the time that

the eyes remain open. If, however, the extravasation be great the whole of the ocular conjunctiva may be separated from the eyeball up the margin of the cornea, but this seldom occurs except in those cases in which the blood is originally poured out within the orbit. At the inner canthus the tendo oculi and lachrymal apparatus appear effectually to obstruct the passage of fluids from the lids to the conjunctiva." "The practical application of these observations will be to detract from the diagnostic value of subconjunctival effusion in cases of suspected fracture of the base of the skull, when associated with contusions so placed as to afford blood that may trickle in considerable quantity into the eyelids." It is noteworthy, however, that in these cases the blood invariably passes in at the outer canthus and occupies, for the most part, the outer side of the eyeball. Hæmorrhage into the orbit, resulting from a fracture of the roof, may collect in two situations either between the bone and its loosely adherent periosteum or on the ocular side of that membrane, and in each case the blood may make its appearance externally. Experiments were made to show the course fluids take when injected into the orbit in these two situations. When injected between the bone and the periosteum the fluid made its way into the upper eyelid, thence into the lower, and finally beneath the ocular conjunctiva from the outer canthus inwards. When injected into the cellular tissue of the orbit the fluid quickly appeared beneath the ocular conjunctiva before staining the lids, and on continuing the injection the whole of the conjunctiva became discoloured, separated from the eyeball, and chemosed. The discoloration of the conjunctiva was by far the most marked sign in these experiments, the fluids appearing subsequently in the lids, and never filling them so completely as in the previous injections. The author sums up—1. Blood may collect in the eyelids as the result of a superficial injury in the vicinity of the orbit, and after distending them may pass beneath the ocular conjunctiva, in which case it invariably spreads beneath that membrane in a direction from the outer canthus towards the cornea. 2. Blood extravasated between the periosteum and roof of the orbit may find its way into the eyelids. It then appears first beneath the skin of the upper eyelid, and subsequently follows exactly the same course and gives rise to precisely the same appearances as blood which has collected in the lids from a superficial contusion. 3. Hæmorrhage into the cellular tissue of the orbit appears first, and in quantity, beneath the ocular conjunctiva and subsequently spreads to the eyelids. The appearance thus presented occurring after an injury to the head is highly characteristic of a fracture of the base of the skull. 4. Extravasation into the cellular tissue of the orbit is sometimes caused by crushing injuries of the abdomen and thorax. The blood is then seen beneath the conjunctiva and in the eyelids, presenting the same appearance as may result from fracture of the base of the skull. The period required for the absorption of the blood averages about three weeks. It disappears first where most pressure is exerted. The treatment should be adapted (1) to check further extravasation—the application of ice; and (2) to hasten absorption. There are various drugs in repute, but their efficacy is doubtful; probably pressure by pad and

bandage may assist somewhat. ('Guy's Hospital Reports,' xix, 423—39.

*Ecchymosis of the eyeball as a sign of fractured skull.*—Dr. Hodges, in the April number of the 'Boston Med. and Surg. Journal,' sums up as follows:—1. An effusion of blood beneath the integuments of the skull, if it does not gravitate backwards, often produces an ecchymosis in the cutaneous surface of the eyelids, but never of the conjunctiva of the lids or globe. 2. A blow directly upon the eyeball may give rise to an ecchymosis of the conjunctiva both of the globe and lids. 3. Where fracture of the base of the skull is indicated by ecchymosis, this ecchymosis appears first beneath the conjunctiva of the globe, then beneath the palpebral conjunctiva, and only subsequently in the integument of the lids, if at all. 4. When the injury has been such as to make a fracture probable, external ecchymosis of the lower lid, and less frequently of the upper lid, is a significant symptom only when it accompanies ecchymosis of the globe or follows it after an interval. ('Lancet,' June 21, 1873.)

*Thrombosis of the cerebral veins and sinuses of the dura mater.*—Dr. Lidell writes a detailed paper on this subject illustrated by the collation of numerous cases. (1) There is a *traumatic* form from direct injury to the sinus. (2) There is an *inflammatory* form, the result of inflammatory processes, taking place in the neighbourhood—(*a*) *otitis interna*, (*b*) *anthrax of the face*. The latter, when attacking the central or upper portions of the face, is almost always attended with thrombosis and phlebitis of the ophthalmic vein and cavernous sinus. (3) *Ulceration of the mucous membrane of the nose* is occasionally attended by erysipelas and gives rise to thrombosis and secondary phlebitis of the frontal and ophthalmic veins, &c. (4) Erysipelas of the same parts may cause insensibility and rapid death by inducing thrombosis and secondary phlebitis of the sinuses of the dura mater. (5) Injury of the skull followed by caries and inflammation of the surrounding parts not infrequently induces thrombosis of the corresponding sinuses. (6) Injury of the skull, without any secondary caries, &c., may lead to thrombosis of the sinuses. (7) Suppurating wounds of the scalp. (8) Suppurating diseases of the scalp. (9) Abscesses in parts external to the skull. (10) Purulent meningitis. ('Am. Journ. Med. Sci.,' Jan. 1874.) In the number for July, 1874, Dr. Lidell treats of the marasmic form, or thrombosis from debilitating influences, and discusses the etiology of the various varieties discussed in this and preceding papers, their symptoms and course and the treatment.

*Antiseptic surgery.*—Mr. Godlee gives an account of Mr. Lister's practice. He relies principally on three antiseptic agents, carbolic acid, boracic acid, and chloride of zinc, each of which is possessed of peculiar properties which render their employment advisable under different circumstances. The first differs from the other two in being volatile, and is therefore employed by preference in every case in which a cavity exists into which regurgitation of air is liable to occur, both during and after the changing of the dressing; any such air is deprived of its septic influence by the vapour of carbolic acid which exists

between the meshes of the gauze or amongst the drops of the spray used, but it would be quite unaltered after passing through a substance containing a non-volatile antiseptic salt, such as boracic acid, the action of the latter being confined to the objects with which it comes into actual contact. The proportion of the ingredients with which the gauze is saturated is as follows:—By weight—carbolic acid, 1; resin, 5; paraffin, 7. The resin is employed on account of the tenacity with which it holds the carbolic acid; the paraffin (which gives it up with great readiness) being added to give the mixture a suitable consistence. The gauze is folded in eight layers and thoroughly overlaps the wound and adjacent parts. Between the two outer layers a piece of thin macintosh "cloth" is inserted, by which the discharge is made to traverse all the layers. For use as a lotion, carbolic acid is dissolved in water in the proportions of 1 part to 20 or 1 to 40, the weaker solutions being now abandoned, as they did not appear to be perfectly trustworthy. The stronger is used for destroying germs already present (injecting compound fractures, &c.), and the weaker for spray, &c. Mr. Lister used the boracic acid for storing up a supply in the so-called boric lint. As boracic acid is much more soluble in hot than in cold water, the effect of soaking lint in a saturated boiling solution is a copious deposit of the crystals throughout its substance on cooling and drying; and as these will be but slowly acted upon by the discharges from the wound, which are at or below the temperature of the body, the lint remains for a considerable time efficacious as an antiseptic application. As a general rule, the lint is used as a dry dressing, overlapping a piece of the protective moistened with lotion, and it is often found very convenient to fix the lint by means of collodion, its edges having been previously frayed out with a pin for the purpose. The special advantage of the boracic acid is its blandness; but its non-volatility limits its application to superficial sores, in the treatment of which it will be found invaluable. Chloride of zinc is also non-volatile, and acts as a caustic, or pickles the tissues. It is only used in particular cases. Mr. Lister uses a solution of forty grains to the ounce for application to the surfaces of the wound after operating on a part where decomposition is already present, or on one which communicates directly with one of the natural cavities of the body (as, for example, after removing piles or cutting a fistula). Mr. Lister constantly uses a drainage-tube, which he modifies in the following way:—A piece of tubing provided with suitable holes is cut obliquely at the inner end, so that it may not be closed by pressing against the flat surface of the interior of the wound, while through opposite sides of the tube, close to its outer extremity, two pieces of silk are passed with a fine needle, and the ends of each are cut at a distance of about two inches and fastened together by a knot. It should be of such a length that when inserted as far as possible into the wound, its outer extremity, previously cut obliquely or transversely, according to the direction of the sinus, may be exactly level with the surface of the skin, a position which the pieces of silk will be found to maintain. The process of skin grafting in Mr. Lister's hands has attained a state of great perfection. The granulating surface is first carefully dressed with carbolic

or boracic acid for some days previously, and the part from which the grafts are taken is also purified. A small piece of epidermis is raised with a sharp scalpel passed only just sufficiently deep to draw blood, and divided on the thumb-nail (which has been washed with boracic lotion) into pieces not larger than a small pin's head; these are placed on the granulating surface, which is covered with a dressing of protective and boracic lint. Boracic spray is used during this process and any subsequent dressing. Various cases of amputation, removal of tumours, abscesses, compound fracture, excision of knee, &c., are detailed. ('Lancet,' May 17 and 24, 1873.)

Mr. D. J. Hamilton writes on the more recent methods of treating wounds on antiseptic principles, from an experience of over three thousand cases. ('Liverpool and Manchester Med. and Surg. Rep.,' 1873, 140.)

Mr. Sampson Gamgee gives an account of a visit to Mr. Lister's wards, and makes some interesting remarks on the subject of the antiseptic treatment of wounds. ('Lancet,' Jan. 3 and 10, 1874.)

Mr. Lund writes on the fallacies and failures of antiseptic surgery. ('Brit. Med. Journ.,' Oct. 18, 1873.)

*Resin cloth and carbolic acid in the treatment of wounds.*—Mr. Lund saturates very thin calico with a mixture of resin and carbolic acid. When carbolic acid is mixed with resin, it is deprived of its irritating qualities, but its antiseptic properties are not diminished. The resin cloth, when properly made, is as efficient as the gauze, and much less expensive. ('Med. Times and Gazette,' July 19, 1873; 'Brit. Med. Journ.,' Dec. 6, 1873.)

*A new form of apparatus for producing an antiseptic spray.*—Mr. Lister describes a self-acting and self-directing apparatus on the plan of Siegle's steam spray inhaler, made larger and stronger and otherwise modified. The nozzle moves on a hinge, to allow it to be directed to any point. A safety valve is added, and a window constructed to allow of inspection of the quantity of fluid in the boiler. ('Edin. Med. Journ.,' July, 1874.)

*Snow as a means of cleaning operation wounds and arresting hæmorrhage.*—Hasse, of Nordhausen, in the 'Centralblatt für Chirurg.,' No. 38, 1874, states that he has several times used snow while performing the operation of tracheotomy. If some loose snow be collected in the hand and pressed firmly on the wound for a few seconds, it passes into all the crevices, and, on removal, presents a complete cast of the wound, the part remaining for some time free from blood, and its sensibility is reduced. He says that the snow absorbs the effused blood better than a sponge; it acts also by the equal pressure which is produced, and by the constringent action of cold on the small vessels, and also as an anæsthetic on the nerves. By the repeated application of loose snow from time to time the field of operation is kept free from blood, and less chloroform is necessary than would otherwise be used. This treatment is, of course, only available where snow is to be had, and in collecting the snow care must be taken that it is clean and loose.

*Treatment of amputation and other wounds.*—Mr. Callender insists

on the importance of attending to details in preparing patients, and on the isolation and dressing of wounds. He considers torsion the most satisfactory plan of arresting hæmorrhage, as it is free from risk of secondary bleeding, and does not leave any foreign body in the wound. An operation wound should not be closed till all bleeding has ceased. It may then be washed with tepid carbolic acid lotion (1 part to 20 of water) or with a solution of chloride of zinc (1 in 30 or 40), and the edges should be brought together, if at all, with silver sutures, either interrupted or continuous. Care should be taken to avoid all bruising. The wound is covered with lint soaked in carbolized oil (1 part in 5), and over this should be placed a thick layer of cotton wool. No pressure should be made on the flaps. Provision should be made for the escape of the fluid which exudes from the wound surfaces during the twenty-four hours which follow the operation. The drainage tube he uses is perforated at many points, and is furnished with a light spring which can be protruded from the end in the wound so as to prevent the tube from falling out. Silver tubes are preferred as convenient for introduction, and least irritating. The metal spring is galvanized. Retention of fluid is always unfavorable and may be serious. After the dressing the parts should be left at rest. The bandages should be applied so that the oiled lint can be removed and renewed after the first twenty-four hours without disturbance of the parts. No wound should be left long without seeing that there is a free channel for the escape of fluid. In all wounds with purulent discharge and for all cleansing purposes camel-hair brushes are used. Each patient has a brush which is kept in a test tube in a solution of one part of carbolic acid in four of rectified spirit. By this means the isolation of the wound, so far as its cleansing is concerned, is secured, and the use of the brush has this further advantage, that it expedites the removal of discharge, is very acceptable to the patient as a painless application, and ensures gentle handling on the part of the operator. The plan is very readily carried out. Mr. Callender applies a splint to the stump in many cases for the first few days, taking care not to put any lint between the two, so that the dressing can be removed without lifting the limb. He often slings an upper or lower extremity. ('St. Barth. Hosp. Rep.,' ix, 14.)

In the 'Brit. Med. Journ.' for Oct. 11, 1873, Mr. Callender writes on the "Isolation and treatment of wounds." In the same journal for Nov. 1st, &c., 1873, he discusses "operating without waste of blood;" "rest and ease—and shock;" "warmth, dryness, and cleanliness."

In 'St. Barth. Hosp. Reports,' x, 139, Mr. Callender insists on the advantage of applying splints to wounds which involve muscles or the fascia covering them. He adopts Dr. Lewis's plan of transplantation. It consists in raising fragments of epithelium with a needle and detaching them with scissors. The fragments are best protected by a small cradle made from two transverse strips of gutta percha with other narrow strips of wire or thread passing between them. The cage should be fastened to the leg, &c., above and below, and should only project enough to protect the granulations.

*Feeding ulcers.*—Mr. Callender has tried Dr. Cohen's plan of feed-

ing ulcers, but has not met with better results than by other methods. He had the ulcers dressed thrice daily with a mixture composed of port wine, yoke of eggs, and a small quantity of prepared chalk. ('St. Barth. Hosp. Rep.,' ix, 19.)

*Rate of wound repair.*—Mr. Callender has had several wounds carefully measured from week to week for the purpose of registering the rate at which repair progresses. It may be concluded that half an inch per week is the average rate of progress; that wounds heal most rapidly in a line corresponding with the long axis of the body; that a transverse wound of an extremity is slowly repaired by comparison with one made longitudinally, and that repair is much more rapid when grafting is employed. ('St. Barth. Hosp. Rep.,' ix, 22.)

*Effects of operations, &c., in producing shock.*—Mr. Callender says it is remarkable how little impression is produced by even the most severe operations. He has had a number of observations taken of the state of the pulse, temperature, and respiration, before and after all operations. On the day after operation the pulse usually rose towards the evening, but in a few cases there was a remarkable fall, owing to the relief which the patient obtained from the removal of some local source of irritation. The temperature either rose slightly or fell slightly; as a rule, it was not materially affected. When it rose the highest it did so from a previously high temperature. The frequency of respiration increased slightly. The first day after, the condition of pulse was very various, although in most cases it rose slightly. The temperature became a little higher. The second day the pulse rose; the temperature also rose, the highest being to 104° from 100°. In three cases the pulse, temperature, and respiration, became natural on the first day; in five on the second; in four on the third; in six on the fourth; in six on the fifth; in six on the sixth; in four on the seventh; in two on the eighth; in one on the ninth; in two on the tenth, and in three on the eleventh. In a few cases there was a stage of "sub-action," the pulse, &c., being lowered for about the same period as in the others there had been "over-action." "Taking all the cases of operation which have been under my care, I never saw anything like a condition of shock which could be measured by any register of pulse, temperature, and respiration, and I say the same respecting injuries; for, except in patients admitted moribund, we never found anything in pulse or temperature or respiration which could collectively be said to indicate shock, so that, whatever is meant by the expression, the condition was so transient that it usually passed off before the cases came under our notice, so far as to leave no trace in these three great signs." He carefully observed three patients suffering from severe injuries, immediately after their being brought to the hospital, and in each instance having the outward signs of well-marked shock. He was surprised at the results. A case of injury to chest and shoulder (a man, æt. 32) had a pulse of 84, temp. 98·6°, and resp. 24. A robust young man, æt. 28, with severe injury to an arm, had a pulse of 76, temp. 98·7°, and resp. 24. Another young man, æt. 21, suffering from concussion, had a pulse of 72, temp. 98·1°, and resp. 26. In a child he found that mere fright and worry raised the temperature, pulse, and respiration,

Observations during some days after injuries are given. Mr. Callender says he never saw a case of recovery from an injury with "sub-action." As to secondary changes, he says by keeping a close watch upon the pulse and (more especially) upon the temperature, which always rose rapidly before any local symptoms appeared, he could always detect the very onset of any complication and practically gain twenty-four hours in the treatment. A table is given showing the pulse, temperature, and respirations of a number of patients, twice daily, for eleven days after operations, injuries, &c. ('St. Barth. Hosp. Rep.,' ix, 3, &c.)

*Amputation-statistics.*—Mr. Callender notes that Sir James Paget and himself have had 30 amputations in succession without a single death, 13 being of the thigh. ('St. Barth. Hosp. Rep.,' ix, 2.) In the succeeding volume, page 133, he reports 44 cases of amputation with only one death, twenty being through the thigh with the single death; sixteen of the leg and eight of the upper extremity, all recovering. Seventeen cases of compound fracture admitted since last report recovered. Forty consecutive cases of compound fracture showed only one death. Mr. Callender thinks that the mortality of primary amputation is so high on account of operations being performed in hopeless cases. Where the condition of the patient is such as really to warrant operative interference the prognosis is good.

*Hospitalism and the causes of death after operations.*—Mr. Erichsen gives a series of lectures on "The rate of mortality after operations," "On the causes of death after operations," "On the mode of production of septic diseases," "On the prevention of hospitalism." ('Brit. Med. Journ.,' and 'Lancet,' Jan. 17 to Feb. 14, 1874.) The average mortality in his wards for twenty years in cases of amputation (excluding parts of the hand or foot) has been 25·7 per cent. Of 80 cases of amputation at the hospital from July, 1870, to Dec., 1873, 21 died, *i.e.* a mortality of 26 per cent. Adding the two sets of cases together he has a total of 387 cases with 100 deaths, a mortality of 2·8 per cent. An average mortality of 24 to 26 per cent. over a series of years may be regarded as somewhat satisfactory. The reports of four large metropolitan hospitals show an average mortality of 36·7 per cent. The average mortality after amputation in eleven of the largest British hospitals is 41·6 per cent. The two principal causes which determine death after the greater operations are shock and septic disease, the former leading to 10 per cent. and the latter to 36 per cent. of all the deaths. Shock is most felt in primary amputations. As regards extensive crushes of the thigh and leg necessitating amputation high up through the femur or at the hip-joint, Mr. Erichsen expresses the opinion that it is scarcely advisable to perform any operation at all, seeing how fatal the results have been. The author proceeds to discuss the various influences (hospitalism) connected with hospitals (over-crowding, &c.) which lead to septic diseases (pyæmia, &c.) being for more prevalent in hospitals than in private houses. He adduces ovariotomy statistics to show that there is something connected with large hospitals determining increased mortality compared with operations in private or in small special hospitals. As regards amputations it is not so easy to draw comparisons, but Mr.

Berkeley's Hill's observations in connection with the hut hospitals at Saarbruck are quoted. It is not mere over-crowding, it is the nature of the cases which gives rise to septic disease. As regards local treatment the essential points are scrupulous attention to cleanliness, absence of impurity (freedom from decomposable matter), and close personal supervision. Mr. Lister's antiseptic treatment and Mr. Callender's method of managing stumps seem to leave nothing to be desired.

*The Hospital Plagues.*—In a clinical lecture with this title, Mr. Hutchinson gives a short account of erysipelas, pyæmia, septicæmia, and hospital gangrene. He insists on prompt and systematic isolation of all contagious cases. ('Brit. Med. Journ.,' Feb. 7, 1874.)

*Pyæmia.*—Mr. Henry Smith records two cases of pyæmia following simple operations in private practice. The patients were young adults. The operations were tying varicose veins and circumcision. ('Lancet,' March 14, 1874.)

Dr. Moxon contributes some remarks to the 'Lancet,' Nov. 14, 1874.

The discussion on this subject at the Clinical Society (Oct. 1873) has been fully reported in the medical journals and is given in detail in vol. vii of the 'Transactions.' We have no space for any sufficient abstract here.

Mr. Jessop remarks on an epidemic of septicæmia which occurred at the Leeds General Infirmary. He tabulates cases of pyæmia and erysipelas. It was specially fatal during a period of three weeks. ('Med. Times and Gazette,' Sept. 6, 1874.)

*Erysipelas.*—Mr. Savory discusses the nature and affinities of erysipelas, and is of opinion that it cannot in the face of the evidence we possess be regarded as simply a local disease, nor, again, as a specific fever. Looking at the mode in which it may be communicated, it cannot be doubted that the mischief is excited by matter of some sort, which is transferred from one person to another, and that the poison when it enters the system passes into and circulates with the blood. It belongs to that class of diseases which result from blood poisoning, of which pyæmia is the type. ('Brit. Med. Journ.,' Jan. 4, 1873, 5.)

Mr. Callender tabulates cases showing the varying time which lay between the rise in pulse and temperatare and the recognition of the rash. ('St. Barth. Hosp. Rep.,' x, 137.)

Mr. Tibbitts notes that while erysipelas prevailed during certain months in the Bristol Royal Infirmary, it was also at the same time plentiful outside the hospital. ('Lancet,' June 13, 1874.)

*A case followed by puerperal peritonitis.*—Dr. Crawford. ('Am. Journ. Med. Sci.,' Oct. 1873.)

*Temperature.*—Mr. Callender calls attention to the slight causes which will sometimes induce a considerable elevation of temperature. In one of his cases, a male, æt. 29, who had been operated on for stone four days before, the temperature rose from 99° to 103° in association with pain in the groins, which passed off in a few hours, and the cause of which was not apparent. In another patient, a male, æt. 39, who had a severe cut of the forearm, the temperature rose from 99° to 104° owing to uneasiness from swinging of the limb. In a third patient, a male, æt. 6, who was going on well after lithotomy, the temperature rose

from normal to 103° owing to plugging of the wound by a clot. In two other cases the temperature rose to 105° and to 101° respectively owing to irritating matters being retained in wounds. In other cases mentioned a high temperature persisted after operations without apparent cause. A very interesting case is noted in which amputation was about to be performed and a decided increase of temperature occurred and persisted till death and indicated tubercular meningitis. ('St. Barth. Hosp. Rep.,' x, 135.)

Mr. Joseph Bell records cases in which temperatures afford some useful results. He summarises to the effect that—1. Suppuration, even very profuse, does not necessarily imply any great rise in temperature so long as it is not putrid. 2. Fœtor, or putrefaction of suppuration, always induces a rise in temperature. 3. A high temperature, lasting more than three or four days after the injury or operation, indicates mischief impending, such as sloughing or abscess. 4. The temperature generally gives warning a day or even two days before the pulse. His cases are divided into three classes:—1. Cases of recovery from operation or injury without putrefaction or suppuration. 2. Cases where the temperature warned of the approach of mischief. 3. Cases of fatal issue with high temperature. In the first group are cases of excision of joints, amputation of breast, &c. In the second, peritonitis, pneumonia, smallpox, sloughing, suppuration of diploë of skull, and gangrenous inflammation of scrotum. In the third, erysipelas after excision of great toe-joint, &c. ('Edin. Med. Journ.,' Aug. 1873.)

Mr. Wagstaffe contributes a second paper on this subject and deals with pyæmia. Before the first rigor there are generally certain peculiarities to be noted. There may be sudden variations without rigors, and these are more significant than a persistent high temperature, but, on the other hand, there may be a persistent and abnormally high temperature, indicating that suppuration is occurring, or that the condition of the blood is one of active chemical change. During the progress of the disease extreme variations are the most marked sign. The rigor is generally preceded by a fall in temperature; during the rigor there is a rapid rise. The temperature after the first rigor is usually as high as at any subsequent period, but the difference between any two temperatures is more marked later on. ('St. Thomas's Hosp. Rep.,' iii, 1872, 131.)

*Artificial production of local anæmia during operations.—Bloodless operations.*—This process, which has for more than a year excited much attention among surgeons, was described by Dr. Esmarch, professor of surgery in Kiel, at a meeting of the German Surgical Society, in April, 1873 ('Berlin. Klin. Woch.,' Aug. 18, 1873), and was afterwards more fully described by him in No. 58 of 'Volkmann's Sammlung Klinischer Vorträge.'

It consists in emptying the part of blood before the operation, and at the same time shutting off the influx of blood. Esmarch has followed this method for several years in cases of amputation where it has seemed advisable to avoid loss of blood, and has more recently extended its use to resections and to operations on diseased bones and joints.

As an example, he describes its application in a case of removal by the chisel of a sequestrum from the tibia. The patient having been chloroformed, a linen bandage, or still better one of caoutchouc, three or four inches wide, is applied to the limb from the toes as far as the middle of the thigh, firmly enough to press out the greatest part of the blood from the capillaries and veins in the direction of the heart. Above the upper end of the bandage a piece of strong india-rubber tubing is tightly bound round the limb, so as to prevent blood from being brought in by the arteries. Esmarch generally uses a strong piece of tubing three feet long, such as is used as a perineal band for counter-extension in the treatment of coxitis by weights. In applying it sufficient force is used to double the length of the tubing, and the ends are fastened together by hooks. In thin individuals the application of the tubing is sufficient to prevent the influx of blood; in fat and muscular persons a firmly rolled bandage is laid over the course of the main artery, under the tubing. The bandage that was first applied being now removed, the skin of the limb below the constricted part is found to be quite pale, and no pulsation can be felt. On beginning the operation the first incisions are followed by the escape of a few drops of dark blood from the deep veins; this, however, soon ceases; the surgeon operates as if on a dead body, without being interrupted by the pouring out of blood and by the assistant's sponge. This is especially exemplified in operating in cases of necrosis with much thickening of the parts, of which Dr. Esmarch relates an example. In the operation which he describes scarcely a drop of blood was lost. As soon as the sequestrum is removed, he plugs the wound with amadou or charpie soaked in a solution of chloride of iron, and then loosens the india-rubber ring. The whole limb at once becomes red and blood flows from the whole surface of the wound; a few arteries require to be tied, but the hæmorrhage is for the most part readily arrested by pressure with cold sponges.

The process is of special service in the scraping of bones and joints which have undergone fungous degeneration, an operation which has been substituted with great advantage for methodical resection. Dr. Esmarch has frequently laid open knee-joints thus diseased by forming an anterior flap, and has been able to carefully remove all the diseased parts by the gouge, without being impeded by the bleeding in distinguishing the healthy from the diseased tissue.

In amputation, *e. g.* of the thigh, the apparatus is applied as already described, and the operation is performed. Before loosening the india-rubber ring, all the vessels that can be seen, or of which the situation is known, are tied. The ring is then loosened, and the blood oozes from the whole surface of the wound as from a sponge; the small arteries spout, and are then readily seized and tied. In Esmarch's cases secondary hæmorrhage did not occur, and the wounds generally healed *per primam intentionem.*

Esmarch also recommends his method in operations on the male genital organs, such as extirpation of the scrotum and amputation of the penis, but here, of course, a smaller ring is necessary. He believes also that by means of the india-rubber ring reservoirs of blood may be stored up in

cases of operations on the neck and trunk, avoiding much loss of blood, namely, by shutting up the blood in one or two of the limbs before the operation is commenced. If the patient becomes anæmic, it is only necessary to loosen the ring and allow a fresh supply of blood to flow into the body.

At the time of publishing his essay in 'Volkmann's Sammlung' in 1873, Esmarch had employed his method in 87 operations, viz. 21 amputations and exarticulations, 8 resections, 13 operations for necrosis, 15 extirpations of tumours, besides several minor operations. At the meeting of the Surgical Congress in Berlin, in April, 1874, he stated that from February 1, 1873, to April 1, 1874, above 200 bloodless operations had been performed at Kiel. Among them were the following :—*Amputations.*—Thigh, 10 cases (one death from erysipelas and pyæmia) ; leg, 11 cases (one death from the same causes) ; humerus, 3 cases (no death). *Disarticulations.*—Shoulder-joint, 1 case (cured) ; hip-joint, 1 case (died of exhaustion). *Resections.*—Hip joint, 3 cases (one death from septicæmia) ; knee-joint, 3 cases (no death ; subsequent amputation in one case) ; elbow-joint, 2 cases (no death ; subsequent amputation in one case).

In his communication to the German Surgical Congress in 1874 Esmarch pointed out, as the principal advantage of his method, the small loss of blood and the consequent diminution of the liability to traumatic diseases, the avoidance of infection through the use of sponges, and the avoidance of excessive local pressure on the vascular trunks, such as is produced by the tourniquet and by digital compression. He had never met with the drawbacks, such as paralysis, gangrene, &c., described by other surgeons. He attributed the paralysis to too tight constriction ; it was not necessary, he said, to draw the first turn of the tubing very tight; besides, the arteries could be compressed by the application of an india-rubber bandage. The production of local anæsthesia, by Richardson's ether spray or otherwise, was facilitated by the production of local anæmia. The plan could be followed in disarticulation of the shoulder- and hip-joints. In enucleation of the hip-joint, he recommended compression of the abdominal aorta by an elastic bandage passed round the body, and having beneath it a pad lying over the vessel.

Prof. von Langenbeck read a paper on this subject at a meeting of the Berlin Medical Society on December 3, 1873 (published in 'Berliner Klinische Wochenschrift,' December 29, 1873 ; discussion in same journal, January 19, 1874). He said that the endeavour to prevent loss of blood by applying constriction to the limbs was not new. In cases of amputation of the upper part of the thigh, where the patient was very weak and much loss of blood was dangerous, he had for some years been accustomed to compress the main artery for some time, then to envelop the limb in a wet bandage from the feet upwards, and to apply the tourniquet.

Esmarch's method differed essentially from this, in that it enabled a perfectly bloodless operation to be performed. He recognised the advantages of the plan in enabling the surgeon to operate with greater ease, not being hindered by the effusion of blood in the

wound. There appeared, he said, to be some transient paralysis of the vessels, produced by the application of the ring, as on its removal the limb became intensely red, as if attacked with erysipelas. Along with this the hæmorrhage from the minute vessels is, perhaps, more abundant than under other circumstances, but beyond this there does not appear to be any disadvantage.

Langenbeck repeats the caution which had already been given by Esmarch in his article in 'Volkmann's Sammlung,' that much care is required in applying the apparatus in cases of disease of the limbs attended with putrid discharges or in cases of soft and easily friable tumours, lest poisonous materials should be forced into the blood. Again, in applying the method in cases of amputation of the upper limb, there is danger of producing paralysis of the radial or of the ulnar nerve, by pressing these nerves too closely against the bone. In two cases of operation for pseudarthrosis of the humerus, Langenbeck observed temporary paralysis of the branches of the median nerve. In a case of operation for necrosis of the humerus, in which the use of Esmarch's method greatly aided the surgeon, there was complete paralysis of the median nerve, which still continued when the patient left the hospital at the end of three weeks. To avoid these occurrences, Dr. Langenbeck has ceased from using the india-rubber tubing in operations on the upper extremity, but, after bandaging the limb, he applies a second india-rubber bandage firmly round the upper third of the arm, and fastens it with pins. In this way he has been able to perform operations without loss of blood and without injuring the nerves. In the course of the discussion which followed the reading of the paper Prof. von Langenbeck said that he had, up to that time, used Esmarch's method in thirty cases, and that it was successful in preventing loss of blood in all except three operations on the lower extremities. The projections of bone in the neighbourhood of the knee-joint often prevented efficient compression of the popliteal artery. Herr Bardeleben said that for ten years he had used vulcanized india-rubber bandages for the purpose of producing constriction, but that they did not succeed so well as wet bandages. Before applying Esmarch's apparatus the limb should be raised, and the artery compressed, till pulsation could no longer be felt in the posterior tibial. He had, under Esmarch's method, performed exarticulation of a metacarpal bone on account of disease following gunshot injury, without any loss of blood and without injuring the nerves. He had also performed a resection of the tarsus, an amputation through the ankle, and an amputation of the leg; the method succeeded in all the cases, but was followed in the last two by rather abundant hæmorrhage.

Prof. Vanzetti states in the 'Gazzetta Medica Italiana Prov. Ven.,' No. 23, 1873, that he had been for several years accustomed, in performing amputations, to bandage the limb tightly from its extremity upwards as far as the part to be operated on; and then, having held the limb in as elevated a position as possible for some minutes, to fasten an elastic bandage round it. The result in most cases was that not a drop of blood escaped from the stump.

In the summer of 1873 Billroth operated by Esmarch's method in fourteen cases, the results of which were so satisfactory as to lead him to strongly recommend the procedure. ('Wiener Medizinische Wochenschrift,' No. 29, 1873.) The cases were two operations for necrosis of the tibia, three resections of the bones of the foot, two resections of the elbow-joint, two amputations by Chopart's method, four amputations and one disarticulation of the femur. In twelve cases the method was completely successful; in two it was less effective. In one of these cases perfect compression of the popliteal vessels was prevented by a cicatrix in that region. The other was a case of disarticulation at the hip-joint on account of caries, in a patient who had already undergone amputation for the same disease. The stump was bandaged, and the india-rubber tubing was applied obliquely from the perinæum to the anterior superior spine of the ilium. The aorta was also compressed, and the elastic ring much diminished the escape of blood. Of the fourteen patients eleven recovered. The patient whose femur was removed at the hip-joint died ten hours after the operation, and two women died after amputation of the thigh, the operation having been performed in one on account of gangrene of the leg following injury of the vessels in the extension of an angular ankylosis of the knee, and in the other for pulsating osteosarcoma of the tibia. Billroth suggests, *à propos* of the former case, that it would be prudent in similar instances merely to apply the elastic tubing and not to bandage the limb, so as to avoid the risk of forcing septic matter into the general circulation.

Volkmann ('Centralblatt für Chirurgie,' No. 5, 1874) has applied Esmarch's method in three cases of disarticulation at the hip-joint. After the leg had been completely bandaged the india-rubber ring was applied obliquely outwards from the femoro-scrotal commissure in the direction of Poupart's ligament, and fixed by a band or by the hands of an assistant, so that it could not slip after the division of the muscles. In the operation, after the formation of a skin-flap, the muscular structure was cut through by a circular incision, the femur was sawn through, the vessels tied (the large ones before the removal of the ring), and the head of the femur was removed, the subperiosteal process being followed as much as possible. One patient, a child, operated on for disease, recovered. The second, a large muscular man, whose limb had been injured on a railway, died of shock; the third, a man, æt. 70, operated on for myxofibroma, died on the fourth day from chloroform poisoning. In all the cases the loss of blood was small, not exceeding respectively one, three, and five ounces.

Dr. Arthur Menzel, of Trieste, employed this method in the removal of a sarcomatous tumour, as large as a child's head, from the inner side of the thigh of a man, æt. 65. The whole limb was bandaged to above the tumour, and the upper part of the thigh was surrounded by four turns of india-rubber tubing. The tumour was now laid bare; it belonged to the soft parts, and was partially adherent to the muscles. The femoral artery and vein and the saphenous nerve ran through the tumour from one end to the other, and the vessels had to be tied. The operation occupied three fourths of an hour, the time being chiefly

occupied in separating the adhesions. No blood was lost, but on loosening the india-rubber constriction for a moment, blood escaped from about fifty muscular twigs. ('Gazzetta Medica Italiana-Lombardia,' No. 23, 1873.)

Prof. P. Müller, of Würzburg ('Wiener Med. Presse,' No. 8, 1874) suggests bandaging of the limbs as a means of supplying blood to the heart and brain in some severe cases of hæmorrhage.

W. Jefremoff, of St. Petersburg (Inaugural Dissertation, 1874, 'Centralblatt für Chirurgie,' No. 23, 1874), has made a number of experiments on dogs and horses with Esmarch's apparatus. He found that to produce complete ischæmia the constriction must be applied with a force of five pounds in dogs, and of sixteen pounds in horses. A series of experiments were performed on six dogs, to ascertain whether bandaging of the limb in cases of phlegmonous inflammation is attended with risk of general infection. Inflammation was excited by the subcutaneous injection of turpentine, and, after three or four days, the limb, which had become inflamed and swollen with suppuration, was bandaged from the toes upwards and amputated. Of the six dogs, one died, the others recovered after going through a severe attack of traumatic fever. Hence, Jefremoff concludes that ordinary inflammation is not a contra-indication to the employment of Esmarch's method. In a second series of experiments, gangrene was produced by the tight application of a bandage above the ankle-joint. After five or six days the limb was bandaged from the toes upwards, and amputation was performed above the line of demarcation. Of six dogs treated in this way, five died of septicæmia, one recovered; but in this animal the experiment was not conclusive, as the bandage used for producing gangrene had cut through the upper part as far as the bone, and hence the gangrenous masses were not carried into the sound parts. The conclusion is that the application of the bandage to a limb which is the seat of putrid deposit is not permissible. In order to determine the time during which an elastic bandage might remain applied without injury, Jefremoff made a series of experiments, from which he proved that in dogs the compression could be borne for periods varying from two to eight hours. During the application of the bandage, the animal gave signs of much pain, but this gradually ceased, and the limb lost sensation and became cold. The sudden removal of the bandage was always painful, while its gradual removal was more easily borne. When a limb remained bandaged several hours, great hyperæmia ensued on the removal of the bandage; if the application was continued for a long time (more than five hours) it was followed by inflammatory swelling, probably dependent on exhaustion.

Dr. Clementini, in a letter to the 'Lancet,' Jan. 3, 1874, vindicates the claims of Dr. Grandesso-Silvestri of Vicenza (1871) and Prof. Vanzetti of Padua (1873) to the merit of having introduced and practised the plan of bloodless surgery.

Mr. Bryant publishes a series of clinical lectures on bloodless operating and bloodless operations as illustrated by the use of the galvanic cautery. After speaking favorably of Esmarch's plan and giving the history of other attempts at removal of blood from a limb before

operation, the author goes on to relate cases which he has operated on by the galvanic cautery. He describes the method of using it and figures the necessary instruments. ('Lancet,' Feb. 28, 1875.)

Mr. Mac Cormac finds Esmarch's plan exceedingly efficacious. He was the first to adopt it in England. ('St. Thos. Hosp. Rep.,' iv, 1873, 43.)

In an address on this subject to the Clinical Society, Prof. Esmarch narrates a case in which he removed the outer two thirds of the clavicle (after bandaging the arm) and then tied the subclavian artery and vein. By this means he was able to remove the arm, scapula, and an attached growth without material hæmorrhage. He also details a case in which he used elastic compression to arrest hæmorrhage while he amputated the penis, testes, &c., in a case of extensive carcinoma. He states that his results since he has adopted plans of entirely preventing loss of blood have been better than before doing so. ('Brit. Med. Journ.,' Oct. 17, 1874.)

*The formation of periosteal flaps in amputation.*—Dr. Guido Tizzoni has ('Rivista Clinica de Bologna,' No. 6, 1874) made a number of experiments on animals on the formation of periosteal flaps, and from these and from observations of patients he has arrived at the following conclusions:—1. The formation of periosteal flaps in amputations is easily carried out. The slight prolongation of the operations is of no consequence in the present day, when we possess the means of sparing the patient pain and loss of blood. 2. The periosteal flaps retract strongly but equally, without forming folds. 3. They remain spread over the sawn surface of the bone without any trouble. The application of metallic sutures to fasten them is not only superfluous but mischievous. 4. Strong union takes place between the medulla and the periosteum within twenty-four hours, and at a later period the latter becomes united to the bone through the medium of the Haversian canals. This early adhesion of the marrow and periosteum is of the greatest practical importance. It effectually protects the marrow from the influence of suppuration eventually taking place in the stump. The union between the periosteum and the bone is, clinically speaking, more by the first intention, inasmuch as it takes place without suppuration; anatomically, however, it is a union by the second intention, inasmuch as it is brought about by granulations, which spring from the Haversian canals. 5. In the interval, the extravasated blood is absorbed, a proliferation of cells takes place in the periosteum and marrow, and an exudation of plasma takes place, so that the flaps are kept moderately distended over the stump of the bone. 6. If the amputation wound heal by the first intention, the ossification of the marrow and periosteum is slight. Under irritation, there is extensive ossification of the periosteal flaps, of the adjacent periosteum, and of the marrow. Thus an internal and an external callus are formed. If the irritation be still greater, abscesses are formed in the periosteal flaps, and these undergo change, first into cartilage, and then into bone. 7. In all cases, without exception, a bony plug is formed in the medullary canal, which prevents the absorption of pus into the marrow. 8 and 9. The periosteal flaps prevent or impede the formation as well as the absorption of pus into the

marrow, both because they favour the ossification of the marrow and because the contact of marrow with periosteum is less heterogeneous and irritating than that of marrow with muscles and other tissues. 10. Suppuration does not destroy the periosteal flaps, for, when this sets in, union has already taken place between the medulla and the periosteum. 11. The tissue which becomes ossified, whether directly from the periosteum or by the previous formation of cartilage, always first undergoes a change into osteoid tissue. 12, 13. The cartilaginous callus is already apparent on the fifth day, and its ossification always proceeds from the periphery towards the centre, in the course of the vessels. 14. The newly formed bone has the structure of true bone. 15. The new bone has a rounded form, and does not irritate the adjacent parts. 16. The observations above made are applicable both to compact and to spongy bones.

The methods of amputation best adapted for the formation of periosteal flaps are the flap and the circular; the oval and elliptical incisions are less so. The periosteal flaps must be at least twice as long as the greatest diameter of the bone, and not less broad than half its circumference. In the forearm, two periosteal flaps should be formed; in the leg, one, from the tibia. If the soft parts over the bone be not too thick (as on the tibia) they may be raised with the periosteum. If, on the other hand, they be very thick, as in the thigh, the flap may be made either of periosteum alone, or with a layer of muscular tissue. Great care is required in sawing the bone, so that it may be divided close to the base of the flap, and that the latter may not be injured by the saw.

*Conical stumps.*—In volume xv of the 'Archiv für Klinische Chirurgie,' P. Güterbock describes the form of conical stump which arises from hypertrophy of the bone, often notwithstanding that the flaps are sufficiently large and the operation has been correctly performed. These osseous proliferations occur in the early months after the operation. The acute forms follow osteomyelitis, or, rather, acute ostitis or periostitis, the result of separation of the periosteum, the bone being at the same time hyperæmic and at certain points distinctly osteoporotic; or they occur as broad and pointed spongy hyperostoses, at first having a rather firm connection with the bone. They may be present at the end of three weeks.

Chronic hyperostosis may occur as the immediate result of an excess in the normal formation of bone in the course of healing, or in the course of, or after, traumatic diseases.

The secondary formation of a medullary cavity, which occurs in many cases, is a process of melting down of the newly formed bone; the two medullary cavities may become united. The newly formed cavity contains red marrow. The cortical substance frequently also becomes spongy. The periosteal proliferation sometimes produces only a layer of cartilage; often, however, there is much thickening of the sawn end by the excessive formation of callus. Haversian canals and lamellæ are formed in the new bone. The hyperostosis is sometimes merely spongy, usually also carious. Not unfrequently, though the ends of the bone remain normal, ossification of the interosseous ligament takes

place (generally from the irritation produced by an artificial limb), and if this be excessive the stump may become conical.

*Amputation at the hip-joint.*—Mr. Pridgin Teale records two successful cases. He marked out by incision through the skin a long anterior flap. He next transfixed the muscles in front of the femur, bringing the knife out through the skin incision, and having secured the large vessels opened the joint. The form of flap proved remarkably convenient. By the preliminary incision through the skin, the exact amount required was secured long enough and broad enough up to its extremity to cover easily and amply the transfixed muscular portion of the flap, a condition which cannot be secured by simple transfixion of muscle and skin at one cut. ('Med. Times and Gaz.,' July 29, 1873.)

Dr. C. J. Gibb records a case in which he used *elastic compression of the limb and aorta* in a case of amputation at the hip-joint. The plan was suggested by Dr Page. The limb was bandaged, then a good-sized pad of linen placed over the aorta, just below the umbilicus, and seven or eight turns of elastic tubing made over it. No inconvenience was experienced from the application of the tubing. ('Lancet,' Jan. 31, 1873.)

Dr. Carothers narrates the case of a lad, æt. 14, who was wounded by a conical musket ball on Dec. 5, 1871. He was first seen on Dec. 13, having suffered severe secondary hæmorrhage the previous night. A most extensive fracture of the trochanters and upper half of the left femur was discovered. A sketch of the bone is shown. The profunda was wounded. Amputation through the joint was performed Dec. 15; that is, ten days after the injury. The wound was washed with chloralum (one ounce to four ounces of water), and subsequently dressed with it. The lad was pulseless for some time afterwards. He did well and left his bed a month after the operation. The author has found chloralum very efficacious in many cases. ('Am. Jour. Med. Sci.,' Jan. 1873.)

A successful case in a lad, æt. 13½, for malignant disease, is recorded in the 'Lancet,' May, 1873. The tumour had been growing about four months. The first symptom was pain. Then in a month a small tumour was noticed at the junction of the middle and lower thirds of the femur. A month later this was punctured; only blood escaped. The swelling at last increased rapidly. On admission it occupied the middle and lower thirds of the thigh. Spicula of bone were met with in the tumour, which proved to be encephaloid, springing from the periosteum. ('Lancet,' May 17, 1873.)

A case in which amputation at the hip was performed by the present compiler is noted in the 'Brit. Med. Jour.,' Oct. 18, 1873. The patient was a child and recovered very quickly after the operation.

*Amputation of thigh below trochanters for fibro-cartilaginous tumour; elastic compression of aorta.*—The case was under the care of Mr. Lister. The patient was a woman, æt. 27, and the tumour had been growing for ten years. It proved fibro-cartilaginous, with cysts. The blood was emptied from the limb by elevation to the utmost. Instead of the aortic tourniquet, Esmarch's elastic band was used. A piece of tubing three eighths of an inch in thickness was wound tightly three or four times round the waist over a folded towel, placed as a pad upon

the bodies of the lower lumbar vertebræ, the tube being secured by the simple plan generally adopted by Mr. Lister, viz. tying in a bow two pieces of bandage previously tightly tied to the ends of the tube. No inconvenience whatever resulted from the tight constriction of the waist. The method seems likely to have this advantage over the aortic tourniquet, that it will avoid the possibility of injury to the viscera, especially in cases of aneurism. When the aorta deviates more than usual from the mesial line, the adjusting of the aortic tourniquet in the oblique position then required is a matter of some difficulty. ('Edin. Med. Jour.,' July, 1874.)

*Myeloid tumour of femur; amputation through thigh; antiseptic dressing; recovery.*—The patient was a man, æt. 18, under the care of Mr. Berkeley Hill. ('Med. Times and Gaz.,' Dec. 20, 1873.)

*Amputation through the knee-joint.*—A successful case in a man, æt. 22, is recorded by Dr. Erickson. The operation was not performed for sixteen hours on account of collapse. Long anterior and short posterior flaps were cut, the patella left and brought down over the end of the femur. The man made a good recovery and could wear an artificial limb well. At one time, when the wound looked sloughing, it was wrapped up in cloths saturated with turpentine and left on for six hours. Afterwards the wound was sponged with turpentine three or four times a day for a week with manifest advantage. ('Am. Jour. Med. Sci.,' July, 1873.)

M. A. Després, in reporting on a memoir of M. Duplong on four cases of disarticulation at the knee-joint, arrives at the following conclusions:

1. Disarticulation of the knee is a no less severe operation than amputation at the lower third of thigh, in consequence of the severe immediate complications, such as inflammation of the remaining parts of the joint, purulent burrowing, and grangrene. It is only in exceptional cases that it offers any advantage as regards the application of an artificial limb. 2. The best proceeding for disarticulation is that of Gunter, with a long anterior and a short posterior flap, so as to cover the intercondylar space. 3. As regards the indications for the operation, it may be accepted for young subjects; in adults, it suits special cases only, such as tumours of the tibia, but it should not be performed for injury unless this be at the lower part of the leg and do not at all implicate the knee. 4. Disarticulation with resection of the condyles for gunshot wound of the knee is admissible; but it is not superior to amputation of the thigh low down. (Société de Chirurgie, Jan. 7, 1874, in 'Gaz. des Hôpitaux.')

*Elephantiasis of the leg; successful amputation through the diseased tissue.*—The case is recorded by Dr. Munro. The thigh was greatly swollen, but diminished in size markedly afterwards. ('Edin. Med. Jour.,' Jan. 1873, 611.)

*Amputation of both feet by Syme's method; preservation of periosteum from os calcis; one stump longer than the other from production of bone.*—The patient was a male mulatto, æt. 19, under the care of Mr. Johnson Smith. Gangrene of the feet followed exposure. On one side the periosteum was loosened from the bone and peeled off the os calcis easily. On the other side it was firmly adherent and no attempt was

made to save it. The stump on this side bore firm pressure first. At the end of some time, the leg on which the periosteum had been saved was one inch longer than the other, and the extremity of the stump was harder and more rounded, resembling that resulting from a Pirogoff. ('Lancet,' May 9, 1874.)

*Subastragalar amputation.*—In a case of smashed foot, Mr. Wagstaffe performed subastragalar amputation with an excellent result. An incision was made over the neck of the astragalus along the inner side to the front of the heel, then backwards in the median line, then round below the external malleolus to the point first started from. The foot was forcibly inverted and dissection carried at first from above and outside, then from behind. ('Med. Times and Gaz.,' Aug. 23, 1874.)

*Avulsion of the arm with the scapula; recovery.*—Dr. F. Katholitzky, of Rossitz, in Moravia, relates the case of a man, æt. 37, whose right arm and scapula were torn away by being caught in a water barrel which was being drawn up a shaft by steam power. The limb was found in the water at the bottom of the shaft 113 days afterwards. Dr. Katholitzky saw the patient an hour and a half after the accident. The wound was about twelve inches long and nine wide, and bled but little. There was no hæmorrhage from the subclavian or any other arteries, and their ends could not be found in the wound. There was considerable shock. The wound was reduced by means of steel clamps to the size of a hand, and was covered with charpie. Six hours after the injury, violent pain set in, but was relieved by subcutaneous injections of morphia. The wound was dressed with iced compresses. During the following days there was sloughing of portions of tissue, with moderately high fever. Nothing further of importance occurred during the healing of the wound, which was complete at the end of the seventh week. Two years and five months afterwards the patient was in good health, but right-sided scoliosis had developed itself. ('Allgemeine Wiener Med. Zeitung,' No. 45, 1873.)

*Primary amputation of the upper extremity, including scapula and outer half of clavicle; entrance of air into subclavian vein; recovery.*—A lad, æt. 14, came under the care of Mr. Jessop for severe injury to the upper extremity, with loss of skin, &c. It was necessary to remove the scapula, and in doing this air was heard to enter the subclavian vein. The lad was suffering from extreme shock at the time, and was almost dead. Ten days after the operation he was allowed to get up, and at the end of three weeks the wound was healed. ('Brit. Med. Journ.,' Jan. 3, 1874.)

*Excision of the scapula.*—Michel describes a case of excision of the scapula in the 'Gazette Hebdomadaire' for 1874, No. 27. The patient was a man, æt. 50, who came under treatment on account of a tumour of the right shoulder-blade, which was diagnosed to be a cystic degeneration of the bone arising from hyperplasia of the medullary substance, together with a tendency to production of young connective tissue. The diseased bone was entirely removed, the surrounding muscular structure being preserved, and recovery was so complete that the arm became capable of being used for almost any kind of work; there was, however, some difficulty in raising it. This satisfactory

condition still remained five years after the operation. The operative procedure differed somewhat from that generally followed. Michel made a large flap with its base outwards, by first carrying an incision from the inferior angle of the scapula along its inner border as far as the clavicle, and then making two incisions from the end of this, one to the outer end of the clavicle, and the other (the lower one) parallel to it along the lateral surface of the chest. The arteries were tied before being divided, the clavicle was sawn through, and the operation was completed without much difficulty.

*Excision of the scapula and nearly the entire clavicle for disease.*—Mr. Jeaffreson relates the case of a young lady, æt. 20, suffering from malignant disease about the shoulder, in which he performed amputation at the shoulder-joint, and subsequently removed the scapula and nearly the entire clavicle. An incision was made in the direction of the spine of the scapula; another from the lower part of the axilla along the upper border of the latissimus dorsi; a third perpendicular one joined these two at their distal extremities, and thus the integument covering the scapula was reflected. An incision was made along the length of the clavicle, the bone cleared, a piece removed from the middle, and the subclavian vessels cleared so that they could be compressed. The muscles were detached from the scapula and the skin from the triangles of the neck, the deeper attachments of the scapula, &c., quickly divided, commencing at the angle. Finally, an incision was made at the inner and middle thirds of the clavicle, and passing downwards and outwards to join the one parallel with the latissimus dorsi, and the whole mass was detached. The patient left her room in less than a month. The disease consisted of ivory-like bone chiefly. The first disease was encephaloid. Recurrence is mentioned in a footnote to the paper. ('Lancet,' May 30, 1874.)

*Excision of the scapula; recovery.*—Mr. Spence records a case in which he successfully removed the entire scapula for a tumour which for twenty years seemed of a simple character, and latterly had a malignant rapidity, &c., of growth. An incision was made from the posterior part of the acromion obliquely downwards and backwards over the tumour to beyond the inferior angle of the scapula, dividing freely the fascia and fibres of the infra-spinatus muscle. The point of the bistoury was then entered over the clavicle internal to the coraco-clavicular ligaments, and carried backwards over the acromion into the first incision, so as to complete a long incision from the outer part of the clavicle to the inferor angle of the scapula. Another was made from the superior angle of the scapula obliquely downwards and forwards over the tumour towards the neck of the scapula. The flaps were then reflected, and the attachments of the trapezius and deltoid to the spine divided. The clavicle was cleared, the axillary artery compressed, the coracoid process cleared after hooking the finger under it, the head of the humerus disarticulated, the long head of triceps divided, the scapula carried backwards and drawn from the body, and the remaining attachments severed. The microscopic examination of the growth did not reveal any structure definitely carcinomatous. Difficulty was experienced in the after-treatment owing to projection

of the head of the humerus and the irritation caused by the sawn end of the clavicle. In future, Mr. Spence would recommend disarticulation of the acromial end of the clavicle instead of sawing it off. This would render the operation more difficult. ('Dub. Journ. Med. Sci.,' June, 1873.)

*Amputation at the wrist-joint.*—Mr. Barwell advocates the following. An incision from the outer point of the scaphoid downwards across the ball of the thumb to the fold of skin formed in the palm by flexing the fingers. A transverse incision is then made along the fold to the outer side of the fifth metacarpal bone; from the end of this a third incision is brought along the outer margin of that bone to the pisiform. At the back of the wrist, on a level with the joint between the two rows of carpal bones, a transverse cut connects the two perpendicular ones. The two flaps—a short posterior and a long anterior—are dissected up, saving the vessels in the flaps. When the flaps are turned back the pisiform is felt for, and the knife being placed above it, the hand is severed from the forearm; then, the soft parts being removed for a short distance on the outer side of the styloid process of the radius, the operator removes as much of the bone with forceps as may be necessary to render the end of the stump plain and level. The advantages are—1, the flaps fit accurately; 2, the chief flap is formed of dense tissue accustomed to pressure; 3, there are no ends of obliquely cut tendon or nerve on the stump, all these parts are cut off higher and straight; 4, the stump is square and level; 5, the operation is easier and quicker, there being no possible hitch in the separation of the wrist from the arm. ('Brit. Med. Journ.,' August 30, 1873.)

*Excision of the head and neck of the femur* for long-standing disease of the hip-joint and removal of bone from the acetabulum in a patient æt. 41. Recovery with useful limb. Dr. Newman records the case. ('St. Barth. Hosp. Rep.,' x, 389.)

In the 'Medical Times and Gazette' (June 6, 1874) are notes of four cases of disease of the hip in which excision was practised by different surgeons. Where the head of the bone was not already dislocated by the disease, the femur was sawn across below the trochanter before trying to exarticulate. In this way the soft parts are less damaged than when the disarticulation is accomplished first.

Mr. Croft advocates *subperiosteal resection.* He uses a keyhole saw to divide the femur at the level of the lesser trochanter. He describes a special apparatus for after treatment. Both thighs are fixed, and extension kept up by a weight. The case of a boy, æt. 7, is recorded. After the operation the limb was kept extended by weights. Four weeks afterwards passive motion was tried. At the end of about seven months he was able to get about with an iron support. Eighteen months after the operation he could run about, flex and extend the thigh on the pelvis, but not rotate or abduct. The limb was only an inch shorter than the other, and an interesting point was that the two femora measured all but exactly the same, though two inches had been removed at the operation. ('Brit. Med. Jour.,' Sept. 19, 1874, and 'Clin. Soc. Trans.,' vi, 174.)

*Incision versus excision of the knee in children.*—Mr. Lund practises incision of the knee in young children rather than excision. He

opens the joint on the outer side, passes in a curved, cutting, hooked knife, and breaks down all adhesions, so as to permit the bones to be replaced in a straight line. It was often not possible to do this at once, but by contrivances with elastic bands, &c., long-continued slight pressure produced excellent results, and firm straight anchylosis was the result. It was, however, an essential condition that it should be conducted entirely upon Mr. Lister's system of antiseoptic dressing. ('Brit. Med. Jour.,' Sept. 19, 1874.)

*Excision of the knee.*—Dr. Ashhurst records a case. The patient was a girl, æt. 11. The knee was flexed at a right angle. A year after the excision she could walk well with a limp, the shortening being an inch and three quarters. ('Am. Jour. Med. Sci.,' Jan. 1873.)

Mr. C. Heath gives an interesting clinical lecture on a case of *excision of the knee* in a boy, æt. 11. He recovered well from the operation and was sent away, but returned in a month owing to *sloughing phagedæna* having attacked the wounds, which were still unhealed. Cauterization with nitric acid checked the phagedæna. ('Med. Times and Gaz.,' Jan. 17, 1874.)

Mr. Tyrrell speaks highly of Dr. Watson's splint for excision of the knee. It consists of a back splint moulded and cut away opposite the wound, heel, &c., and a front long piece of iron from which the limb may be suspended. The whole is fastened on by means of plaster of Paris or paraffine. ('Dub. Jour. Med. Sci.,' Feb. 1874.)

Mr. Gant performed excision for *chronic rheumatic arthritis* in a woman fifty-three years of age. The patient had no unfavorable symptom for two months, when she was allowed to sit up out of bed. A sudden attack of erysipelas occurred. Ultimately she recovered a useful limb. The author remarks on the exceptional character of the disease, the age of the patient, &c. ('Med.-Chir. Trans.,' lvi, 213.)

Mr. Arnott records a case of excision of knee (successful), while loss of blood was prevented by Prof. Esmarch's plan. This was the first case of the sort in England. ('Clin. Soc. Trans.,' vii, 46.) Interesting remarks are made on the general use of this method.

Dr. Thompson records a case in which he removed a wedge-shaped piece from the tibia and femur for anchylosis at a right angle. ('Dub. Journ. Med. Sci.,' May, 1874.)

Mr. Sydney Jones adds eleven new cases. In four of them, the mischief was dependent on the existence of a sequestrum or bone abscess in the neighbourhood of the joint. In two, there was fibrous anchylosis and malposition of limb. In five, there was malposition and progressive disease. Four were in children under seven years of age. These patients seemed to suffer less from shock. One woman, æt. 29, died soon after the operation with erysipelas and disease of the kidneys. Another patient, æt. 21, died at the end of eight days of pyæmia, and a third died in thirteen days of pyæmia. The latter case was one of necrosis of the patella. In one woman, æt. 32, who recovered, *secondary hæmorrhage* occurred at the end of *fourteen days* and was controlled by pressure on the femoral. A patient, æt. 12, had a rigor five days after excision and several rigors subsequently—every appearance of pyæmia. Sixteen days after the excision amputation was performed. The femur showed

evidences of osteo-myelitis. One rigor followed the amputation, and secondary abscesses formed in the axilla, on the surface of the os calcis, and in the abdominal wall, the latter sometime after the stump was healed. The patient recovered. Of twenty-seven cases hitherto reported, five ended fatally and in one amputation was performed. The author thinks that when in any given case the conditions are such that the surgeon is really in doubt whether to excise or amputate, it is better to amputate. Excision of the knee is not an operation to be undertaken unless the patient's condition is good. ('St. Thos. Hosp. Rep.,' iii, 1872, 255.)

*Excision of the ankle.*—Mr. Sydney Jones has had a successful case in a lad of 15. The parts became firmly anchylosed afterwards, and the limb was shapely and useful. ('St. Thos. Hosp. Rep.,' iii, 1872, 278.)

Dr. Joseph Bell showed to the Med.-Chir. Soc. of Edinburgh the bones of the ankle-joint and tarsus which he had recently removed by Syme's amputation from a boy, æt. 12. The specimen was interesting from the fact that about a year previously he had excised the ankle-joint for disease of the joint and of the lower end of the tibia, by the subperiosteal method. Bone was very extensively reproduced and the patient made a good recovery from the operation, but unfortunately disease again recurred in the tarsus. The lower end of the tibia was quite as large as the other one, though it had been entirely removed. ('Edin. Med. Jour.,' April, 1874.)

*Primary excision of the ankle-joint.*—Dr. Landis reports a case in a lad of 15. The knives of a mowing machine struck the left ankle from without, cutting off the external malleolus, shaving a thin segment from the top of the astragalus and completely exposing the joint, leaving the foot attached to the leg by a thin flap over the internal malleolus, three inches in breadth, but in which the posterior tibial vessels and nerves lay uninjured. Dr. Miner sawed off the articulating surface of the tibia and the projection of the internal malleolus, enough of the astragalus was also removed to insure neat apposition. Carbolic acid solution was unremittingly used during the after treatment. Anchylosis followed and there was every promise of the foot being very useful. ('Am. Journ. Med. Sci.,' Jan. 1874.)

Mr. Lee records the following case. A man was admitted into St. George's Hospital with a compound dislocation of the ankle-joint, the lower ends of the tibia and fibula projecting through a wound on the outer side. The protruding extremities of the bones were sawn off; the foot was then turned still further inwards and the articulating surface of the astragalus removed. The internal malleolus was broken off and was left with the internal ligament attached. The patient recovered without any unfavorable symptom. He could walk five miles or more. The leg was about half an inch shorter than the other. A representation of the condition of the ankle after recovery is given. (Mr. Lee claims that this is the first case on record of complete excision. He alludes to a case mentioned by Mr. Maunder, however, and a case occurred at the London Hospital in 1868, under the care of Mr. L. S. Little. In the latter case, the ends of the tibia and fibula and the articular surface of the astragalus were removed, the patient making an excellent recovery.—Ed.) Mr. Lee insists on the greater ease

with which the bones can be turned outwards after division of the internal malleolus than inwards. ('Med.-Chir. Trans.,' lvii, 137.)

*Excision of the astragalus and os calcis.*—Mr. Humphry details a case admitted into the Sussex County Hospital. The patient was a boy, æt. 9. On proceeding to remove the os calcis, the astragalus was also found to be diseased and both were removed. The two malleoli were not removed. The boy recovered and had a strong, useful foot. A woodcut from a photograph is given. ('St. Barth. Hosp. Rep.,' x, 377.)

*Caries of os calcis; excision.*—Mr. Tyrrell records a case, the patient being an adult woman. An excellent recovery followed. ('Dub. Journ. Med. Sci.,' August, 1874.)

*Excision of the anterior tarsus and base of the metatarsus—a new operation.*—Dr. P. H. Watson performed this operation first of all in the case of a lad, æt. 19. He was suffering from spontaneous subacute disease, involving the articulations chiefly upon the inner side of the foot, between the cuneiform bones and metatarsal bones, but accompanied by symptoms indicative of involvement of the external tarso-metatarsal joints and of the scaphoid and cuneiform bones in a minor degree. He had improved for a time under treatment. Amputation seemed too severe a measure. It was obvious that all the disease which required removal was situated between the base of the metatarsus in front and the astragalus and os calcis behind, and that the excision of such a section of the hard structures forming the skeleton of the foot as was bounded by the two transverse lines of Chopart's line of amputation behind and Hey's in front would secure the fulfilment of every requisite for sound recovery in so far as the removal of all actually existing osseous disease and all tension of the articulations were concerned. Various possibilities rendering success uncertain are discussed. The operation was effected by making an incision on the outer and inner sides of the foot between three and four inches in length; that upon the outer side extending from the centre of the outer margin of the plantar surface of the os calcis as far as the middle of the metatarsal bone of the little toe, that upon the inner side of the foot from the neck of the astragalus to the middle of the metatarsal bone of the great toe. The soft parts were then carefully dissected off the dorsal and plantar surfaces of the tarsus from the outer and inner sides, until the whole extent of osseous tissues to be removed was deprived of its soft coverings. In effecting this the thumb of the left hand formed the guide to the point and edge of the knife in keeping close to the surface of the bones, so as to avoid any interference with the important structures contained in the soft parts. A curved probe-pointed bistoury, inserted between the soft parts and bones, was then carried across the line of articulation, between the astragalus and scaphoid and os calcis and cuboid bones, first upon the dorsal and then upon the plantar surface, so as to open up these joints. A little further use of the knife completed the severance of the bones posteriorly. A keyhole saw was now introduced between the plantar soft parts and the shafts of the metatarsal bones, which were then cut through, the handle of a pair of bone forceps being inserted between

the metatarsal bones and dorsal soft parts to protect the latter from injury by the teeth of the saw cutting from below upwards. After the operation and before the renewal of the tourniquet, the entire wound was plugged firmly and securely by means of pledgets of lint passed through and through the gap in the foot, and laid in closely one upon the back of the other so as completely to fill up the aperture, and at the same time so closely crowded together as to secure, when pressure was applied from the outside by other pads supported by a bandage, that no bleeding should take place. This dressing was retained *in sitû* for forty-eight hours. When removed there was no bleeding. The same mode of dressing was continued for six weeks. Gutta-percha splints supported the sides and the sole of the foot. The opening did not close for three months. At the end of six months the boy could walk well. Four years after the operation he walked without defect. Since that time five other cases have been operated on. In one the same thorough dressing was not applied, and the wound did not heal well all over. Amputation (Syme's) was performed and it was then found that the parts were in a fair way to heal well. The neglect of dressing was probably the only cause of want of thorough success. The four other cases did very well. ('Edin. Med. Journ.,' May, 1874.)

*Excision of the shoulder-joint.*—Dr. Maclaren records a case in which he removed the head and upper part of the humerus (three and a half inches in all) from a child six years old, with an excellent result. The disease followed injury. There were several sinuses. The periosteum was saved, and two and a half inches of bone were reproduced. A portrait is given. ('Lancet,' June 7, 1873.)

Sir J. Rose Cormack records a successful case of excision of the shoulder-joint for gunshot. ('Brit. Med. Journ.,' Sept. 5, 1874.)

*Necrosis of humerus.*—Dr. Donovan records a case, in a lad, æt. 15, in which he removed the head and shaft of the humerus (not the lower extremity) for necrosis twelve months after the commencement of the affection. The patient did well. The bone removed is figured. ('Lancet,' July 18, 1874.)

*Excision of the extremity of the humerus in cases of anchylosis of the elbow-joint resulting from injury.*—Dr. P. H. Watson describes a new form of operation in anchylosis of the elbow. His object is to save the triceps and other muscles as far as possible. In these cases it is the humerus alone which is affected, at any rate with very few exceptions, and to remove the upper extremity of the ulna weakens the muscular attachments unnecessarily. The operation consists in the following steps:—(1) A linear incision to be made over the ulnar nerve to the inner side of the olecranon, rather longer than that usually employed in the ordinary excision of the elbow by linear incision. (2) The ulnar nerve to be turned over the internal condyle by careful dissection. (3) A probe-pointed bistoury to be introduced into the elbow-joint in front of the humerus, and then behind that bone and carried upwards, so as to divide the upper capsular attachments in front and behind. (4) A pair of bone foreceps to be next employed to cut off the entire inner condyle and trochlea of the humerus, and then introduced

in the opposite diagonal direction, so as to cut off the external condyle and capitulum of the humerus from the shaft. (5) The truncated and angular end of the humerus to be cleared, turned out through the incision, and smoothed across at right angles to the line of the shaft by means of the saw, whereby (6) room might be afforded so that, partly by twisting, partly by dissection, the external condyle and capitulum are removed without any division of the cutaneous tissues on the outer side of the arm. Dr. Watson has practised this mode of operation in six cases. The merits of the operation, which is believed to be original, consists—1. In leaving the attachments of the triceps and brachialis undisturbed, affording, therefore, a degree of leverage in the movements of the forearm which cannot be attained when the olecranon or any portion of the upper end of the ulna are interfered with or removed. 2. In limiting the area of operation almost exclusively to within the capsular ligament of the elbow-joint, which seems to secure more speedy healing of the wound than would otherwise occur. 3. In securing, by the line of the incision being internal and posterior, less ultimate surface deformity, a more direct drain for discharge, and a more ready access to the ulnar nerve, than by any other method. The procedure does not afford a ready access to the external lateral ligament, but this is of little importance if the condyles of the humerus be obliquely divided from above downwards, so as to cut through the articular surface by means of bone pliers between the trochlea and capitulum of the humerus; if the capitulum and external condyle be cut off obliquely from the shaft by means of pliers applied from below upwards; if the end of the shaft be turned out, and as much of its truncated and conical extremity be cut off as may be deemed requisite, and, lastly, if the capitulum and external condyle be dissected and twisted away from their remaining ligamentous and other attachments. The operation may be difficult or impossible in cases of complete bony anchylosis, but these are very rare, and then the ordinary operation may be performed. Forcible flexion and extension under chloroform will, in the majority of cases, break down adhesions. If not, a transverse section of the humerus with bone pliers through the condyles, excision of a portion of bone above this level, and piecemeal excision of the anchylosed condyles themselves by means of the forceps and gouge, would afford an alternative means calculated to remove all ordinary difficulties. ('Edin. Med. Journ.,' May, 1873.)

*Excision of the wrist.*—Mr. Sydney Jones performed Lister's operation in the case of a man, æt. 42. The after progress was good. A sinus remained open for some months, but finally closed after the removal of some necrosed bone. The movement of the thumb towards the fingers was very considerable, and the fingers also possessed considerable movement. ('St. Thos. Hosp. Rep.,' iii, 1872, 280.)

*Splint with a movable (central) portion.*—Dr. Packard describes and figures a bracketed splint for excision of the knee, &c. The advantage is that a portion at the middle (or any other part of the splint) is made to slide in and out, and can be removed for convenience of dressing any wound. ('Clin. Soc. Trans.,' vii, 96.)

*The results of resection of joints in military practice.*—In a paper

read before the German Surgical Congress on April 18, 1873, Herr von Langenbeck attributed the unfavorable results of resection of joints in military practice partly to the manner in which the lists of invalids are drawn up, many men being, in order that they may secure their pensions, returned as more or less unfit to follow their calling although they have fairly useful limbs, and partly to neglect on the part of the persons operated on of the necessary exercise of their limbs. For the ultimate result, the careful performance of the operation is of more importance than the choice of the method; the complete preservation of all the tendons and muscles in the vicinity of the joint, along with the periosteum of the diaphysis, forms the essential part of subperiosteal resection from which alone good results are to be expected.

*Shoulder-joint.*—At first, Langenbeck performed scarcely any but secondary resections of this joint, but, in consequence of the greater destruction of parts produced by modern firearms, a wider field has been opened for primary resection. Good movable shoulder-joints can be secured by conservative treatment, if care be only taken to prevent anchylosis by means of passive movements. On the other hand, Langenbeck is acquainted with cases of loose union following extensive destruction of the joint, where the forearm and hand were not rendered useless. The power of using the limb, when once regained, is not again lost, but becomes more perfect in time. The favorable results observed by Langenbeck occurred almost exclusively in individuals placed in the conditions just described. Even after extensive resection of the diaphysis of the humerus, the possibility of retaining a fairly useful limb is not excluded. In a case of this kind, the whole shaft of the humerus became necrosed and was removed, and the elbow-joint was resected, and yet the reproduction of bone was so complete that the shortening amounted to no more than 1⅗ inches. The patient was young, and as growth went on the limb always remained somewhat behind its fellow; but although the newly formed humerus was broken several times, there was very satisfactory power of motion in the shoulder- and elbow-joints, and the hand was capable of the most delicate movements. The mortality after resection of the shoulder-joint, especially when the intermediate and secondary operations are taken into account, is less than that after exarticulation. Langenbeck arrived at the following conclusions as the result of his experience:—1. All slight gunshot wounds of the shoulder-joint justify an attempt at conservative treatment, with the proviso that in many of these cases secondary resection will become necessary. 2. All extensive gunshot fractures of the shoulder-joint demand primary resection. 3. Shattering of the shoulder-joint with laceration of the soft parts does not in itself call for exarticulation, but for secondary resection. 4. The object of conservative surgery is to preserve a movable shoulder-joint and to avoid anchylosis. 5. After anchylosis of the shoulder-joint has taken place, the usefulness of the arm may be improved by resection of the head of the humerus. 6. The formation of a new joint capable of active movement is best secured by subperiosteal resection. 7. After subperiosteal resection, the most careful after treatment is necessary to secure a

useful joint. 8. A deterioration in the part, increasing with time, perhaps through progressive muscular atrophy, does not follow resection of the head of the humerus. The so-called quasi-paralytic condition (*lähmungsartige Zustand*) is nothing but a paralysis arising from inactivity. 9. This paralysis from inaction may be yet overcome long after resection by appropriate treatment, and the power of using the limb may be restored.

*Elbow-joint.*—It is not always possible to ascertain at first whether recovery from an injury of the elbow-joint will take place without resection; it is often necessary to wait. In cases of extensive injury of the joint, no attempt at conservative treatment can be made, but resection must be at once performed. Intermediate resections are attended with much danger. The usefulness of an arm when the elbow-joint is anchylosed at a favorable angle, is not so great as when a joint capable of active motion is obtained after resection. Langenbeck believes that the reproduction of bone in the epiphyses after operation takes place in a manner analogous to the physiological growth of bones; and as the growth of the upper epiphyses of the radius and ulna is less than that of the lower, and that of the lower epiphysis of the humerus less than that of the upper, there will be a smaller reproduction of bone at the elbow, and hence as little as possible should be taken away. Regeneration of bone may entirely fail even after complete subperiosteal resection. The after treatment is of the greatest importance as regards the ultimate result, and by careful management a very loose joint may be converted into one capable of active motion and perfectly useful. The use of electricity is of special value in such cases. With regard to the method of operation, Langenbeck prefers Hüter's plan (a long incision on the radial side and a small one on the ulnar side); it is especially adapted for periosteal excision, and has the advantage that the tendon of the triceps is not cut through longitudinally, as in Langenbeck's method. Its disadvantages are the necessary division of the annular ligament of the radius, and the removal of too large a portion of this bone. Passive exercise of the joint must be made with great care, and not until the wound is healed. The limb must be constantly supported for a long time by a jointed apparatus.

*Wrist.*—Of resection of this joint, Langenbeck has had but little experience. Gunshot fractures of the lower epiphyses of the radius and ulna and of the carpal bones, as well as those of the latter bones alone, call for primary resection. When there is simple perforation of the wrist and carpus, the surgeon may wait; if much swelling set in, and cannot be overcome by large incisions, resection must be performed; conservative treatment appears to be dangerous in cases of extensive injury. Partial primary resection may probably be followed by a successful result; but it must be remembered that a movable joint is to be expected only after removal of the ulnar epiphysis alone or of the carpal bones. Of the carpal bones, two (trapezium and the pisiform bone), if intact, may be left, as their articulations are not in direct connection with the wrist-joint. The mortality after primary resection

appears to be less than after secondary. Conservative treatment accomplishes little.

*Ankle-joint.*—In regard to this joint, resection is not to be compared with conservative treatment, which may be carried out to a great extent, but rather, in many cases, is to be regarded as a substitute for amputation. In conservative treatment and after resection the chief object is to obtain anchylosis in a good position. Wounds of the capsule and gunshot wounds perforating the astragalus are alone adapted for conservative treatment. In cases of shattering of the bones of the ankle-joint by shot of heavy calibre, primary resection should not be performed, but the surgeon should place the joint in an immovable apparatus and wait for a favorable time for secondary resection. Langenbeck has seen equally good results from both partial and entire resection of the ankle; partial resection is, therefore, to be preferred, care being taken to allow a free exit to the discharges from the wound. In cases of gunshot fracture of the lower end of the fibula alone (with one exception) Langenbeck has removed the external malleolus and the upper articulating surface of the artragalus. In extensive fracture of the astragalus, with pieces of shot remaining in the bone, Langenbeck recommends excision of the bone alone. The reproduction of bone after this operation is usually abundant; this is probably attributable to the ligamentous apparatus, especially the interosseous ligament. Langenbeck has never seen healing follow total resection of the joint on account of caries, but Hüter's experience is more favorable. ('Archiv für Klinische Chirurgie,' xvi.)

*Osseous tumour or enostosis of frontal sinus and orbit; removal; recovery.*—Mr. Bryant relates the case and remarks on this kind of tumour. The patient was a man, 24 years of age. The growth had been noticed about five years. Illustrations are given. ('Guy's Hosp. Rep.,' xix, 102.)

*Orbital sarcoma treated successfully by excision and cautery.*—Mr. Carter records a case of orbital sarcoma treated by removal of the eye and eyelids and contents of orbit, application of a hot iron to check hæmorrhage, and then chloride of zinc paste. In conjunction with other cases Mr. Carter thinks this one pleads powerfully for the early and complete removal of cancer wherever such removal is practicable and the danger of delay. ('Clin. Soc. Trans.,' vii, 62.)

*Removal of an encysted tumour of the neck weighing over one and a half pounds.*—Dr. Davis records the case. The patient, a man, æt. 35, recovered well from the operation. The tumour was very deeply situated and the hæmorrhage very considerable. ('Am. Journ. Med. Sci.,' April, 1873.)

*Sarcoma in scapular region; removal; death.*—A girl, æt. 16, came under the care of Mr. Henry Smith for tumours in the supra- and infraspinous fossæ of the scapula. They were removed without touching the bone. On the fifth day, the temperature and pulse rose and the patient died a week later. ('Lancet,' Jan. 24, 1874.)

*On the extirpation of enlarged lymphatic glands.*—Mr. Rushton Parker details twenty-six operations for the removal of enlarged lymphatic glands. In twenty instances the removal was completely successful.

He recommends accurate adaptation of the edges of the wound and the application of pressure. He used carbolized muslin, a 1 per cent. solution of carbolic acid in water and carbolized sutures. ('Liverpool and Manchester Med. and Surg. Rep.,' 1873-4.)

*Fibrous tumour of the popliteal space.*—The patient was a young woman under the care of Mr. Lister. The tumour appeared to have grown from the deep fascia, and its removal involved exposure of the popliteal vein as well as the internal popliteal nerve. Strict antiseptic management was adopted, with free drainage, and the wound healed in four weeks. ('Edin. Med. Jour.,' July, 1874.)

*Excision of the entire ulna for necrosis.*—The patient, a girl, æt. 16, was under the care of Dr. Hutchison. At the end of four months a new ulna had formed, including the olecranon and styloid processes. ('Am. Jour. Med. Sci.,' Jan. 1874.)

*Necrosis of the radius; resection; preservation of a useful hand.*—Dr. B. J. D. Irwin records a case in a lady, æt. 27 ('Am. Jour. Med. Sci.,' Oct. 1874).

*Removal of the tongue by the galvanic cautery.*—Mr. Bryant narrates a series of cases in the 'Lancet,' Feb. 28, 1875.

Four cases of removal of the tongue by the galvano-écraseur under care at University College Hospital are recorded in the 'Lancet,' June, &c., 1873.

Mr. Furneaux Jordan has removed the tongue three times by a combination of steps which seems to constitute a new operation. First, the cheek is divided backwards to the vertical ramus of the jaw, then the root of the tongue is seized by the finger and thumb of one hand while the other passes under it a strong curved needle carrying stout cords; the cords are left in the channel made by the needle, which is withdrawn. Next, the chains of two écraseurs are drawn, one after the other, through the channel by means of the cords; then one chain is tightened over the dorsum of the tongue, close to the faucial pillars, the other deeply at the floor of the mouth, and both are worked simultaneously and slowly. Next, if there be any hæmorrhage at all, there may be needed a touch or two of a pointed cautery or the application of perchloride of iron. Lastly, the wound of the cheek is brought together. The patient is supported by enemata for two or three days, only a little iced water is given by the mouth. Care must be taken that the écraseurs are not locked. ('Surgical Inquiries,' p. 18.)

*Harelip and cleft palate.*—Sir William Fergusson, in some observations on harelip and cleft palate, after discussing the anatomical conditions which are met with, passes on to the surgical treatment, and says harelip may be operated on at any time, but he prefers the period between three weeks and three months. In unhealthy pining infants, brought soon after birth, it is better to wait to see that health flourishes. In cases of double harelip with a projecting intermaxillary portion he is in the habit of removing the projecting part. He uses the truss-compressor to each cheek, as he thinks strapping exercises injurious pressure on the parts. He removes the projecting part high up, where there is only cartilage to cut through. Latterly he has been in the habit of making an incision through the mucous membrane and periosteum over

the projecting piece of bone, entering a gouge of small size and scooping out the body of the milk incisor tooth, &c. In this way the hard projection is removed and the tissues that remain offer no obstruction to the union of the soft parts. In reference to operations on the hard palate, Sir William introduces the following most important modification into English practice. Instead of making a separation between the soft tissue and bony palate for a quarter of inch or so, he divides the palate, soft tissue, and bone, about a quarter of an inch from the margin of the gap on each side, cutting the soft tissue in the roof of the mouth with a scalpel and the bone (with the mucous membrane above in the nostrils), with a chisel, by means of which he presses the margins towards the mesial line; so that having been made raw previously by removing the mucous membrane, they may be brought into apposition and retained there by stitches. His first patient was a lad, aged eighteen. Figures are given showing the position of the lines of incision. The edges having been carefully pared, an incision was made by means of a small scalpel on each side the cleft about a quarter of an inch from the margin. The back part of these wounds penetrated the soft palate and in front they were close to the bone. Then the point of a small rounded chisel was forcibly, but carefully, pushed upwards through the bone into the nostril, through each wound, and by slight lateral movements of the blades, each lateral portion could be readily made to meet the other in the mesial line, whereby the raw edges made at first could be placed in apposition. The parts were then held in position by a single stitch introduced in the usual way, passing on each side through the soft tissue, so that it might remain steadily in one place. Granulations subsequently filled in the lateral gaps. When the stitch was removed the union in the centre seemed firm. Five cases are detailed. Sir William Fergusson thinks that difficulty may be experienced in carrying out this operation in all cases. In a few cases the vomer may remain attached to one half of the hard palate and thus prevent the introduction of stitches from one side to the other. ('Brit. Med. Jour.,' March 28 and April 4, 1874.) In the number for June 20 Mr. MacCormack points out that Dieffenbach proposed a very similar operation in certain cases. Sir William Fergusson's cases were reported to be all doing well in the 'Lancet,' Feb. 28, 1874.

Sir William Fergusson has further modified his operations to avoid a tilting of the fragments, which was liable to occur. After paring the edges of the mucous membrane, he pierces the hard palate with an ordinary shoemaker's awl in two places on each side of the cleft, close to the margin in such a manner that the holes on one side of the fissure are directly opposite those on the other. A separate silk suture is then passed through each hole on one side, carried into the nasal cavity and brought into the mouth again through the holes on the opposite side of the cleft. When the sutures are thus secured the hard palate is divided on each side outside the apertures by means of a chisel, as before described. The silk sutures are then drawn together and the two fragments of bone brought gently into apposition. Sir William mentions that he believes his operation had been proposed by Dieffenbach. ('Lancet,' June 20, 1874.)

A note of remarks by Mr. Rose on this subject (with details of cases) before the Medical Society will be found in the 'Lancet,' Dec. 26, 1874.

Mr. T. P. Pick records various cases of cleft palate on which he has operated. ('St. Geo. Hosp. Rep.,' vi, 147.)

Mr. Mason contributes some clinical remarks to the 'Lancet,' Oct. 24, 1874. Illustrations of his method of operating are given.

*Rhinoplastic operation.*—Mr. Wood successfully formed a covering for the greater part of the nose by a series of operations described and figured. ('Med. Times and Gazette,' Dec. 27, 1873.)

*Removal of naso-pharyngeal polypus.*—O. Karpiuski ('Berliner Klinische Wochenschrift,' April 27, 1874) operated by Von Bruns' method in the case of a soldier, æt. 21, who had a naso-pharyngeal polypus, attended with frequent hæmorrhage. The pedicle was attached near the opening of the Eustachian tube. On raising the left half of the nose so much bleeding followed that it was necessary to plug the part and to defer the completion of the operation for two days. The polypus (a myxosarcoma) was removed, and a tampon soaked in liquor ferri perchloridi was applied to the stump of the pedicle. The nose was replaced at the end of a week, when the plug was removed and the remains of the tumour extirpated. Healing took place rapidly, and the patient had no return of the disease six months after the operation. (Von Bruns' method was described in the 'Biennial Retrospect' for 1871-72, p. 235.)

*Removal of naso-pharyngeal polypus by displacement of the superior maxillary bone.*—Mr. Cooper Forster narrates a case in which he removed a very large naso-pharyngeal polypus by slitting the upper lip and nostril on the right side, removing the right median incisor, sawing through the intermaxillary bone, and the nasal process of the superior maxilla, and turning the bone forcibly outwards after dividing the hard palate with bone forceps. The growth was then well exposed and removed without much hæmorrhage. The palate process was not divided, and so the bone, when replaced, was better supplied with blood. The growth rapidly returned. The patient then came under the care of Mr. Heath, who removed the new growth with the galvanic éraseur, but the patient gradually sank. ('Guy's Hosp. Rep.,' xviii, 57.)

*Treatment of a naso-pharyngeal polypus by the galvanic cautery.*—Ciniselli had under his care in the hospital at Cremona a patient suffering from a pharyngeal polypus which interfered with respiration, deglutition, and speech. On examination through the mouth the entire wall of the pharynx was found to be occupied by a fleshy swelling, which completely blocked up the left aperture of the nares and pressed the epiglottis against the base of the tongue. The starting-point of the tumour could not be discovered. The patient being extremely emaciated and anæmic, any operation involving loss of blood was impossible; and therefore Ciniselli determined to apply the galvanic cautery. On November 20, 1869, he commenced with a small Grevet's battery of eight elements. The rheophores, of steel, were about 4½ inches long, and were covered with india rubber to about an inch from the ends. The needle of the negative pole was introduced through the left nostril

into the polypus; the other through the mouth into the right side of the swelling, and the current was passed through the tumour for fourteen minutes. On November 29 the eschar fell off from the soft palate, and there commenced a discharge from the left nostril of a brownish-yellow fluid containing shreds of destroyed connective tissue; this was believed to indicate that an eschar formed by the action of the negative pole had been thrown off. On December 8 respiration and deglutition were more easy. After twenty applications of the current, the tumour decreased so much that in October, 1871, there was only a slight indurated elevation on the posterior inferior wall of the pharynx.

*Excision of the upper jaw; preservation of the muco-periosteal covering of the hard palate.*—P. F. Reedinger describes in the 'Berliner Klinische Wochenschrift' for 1873, No. 44, the case of a woman, æt. 33, who was under the care of Dr. Sinhart in consequence of phosphorus necrosis of both upper jaws. The operation was performed in the following way. The nose and upper lip were divided in the middle line; the soft parts with the periosteum were pushed back on both sides, and then the right upper maxilla was divided directly downwards from the infraorbital margin, the left from half an inch lower obliquely outwards as far as the last molar tooth but one. The gum, with three incisor teeth, was loosened, along with the covering of the hard palate, and both upper maxillæ were thus removed.

In the after treatment, in order to give the parts as much rest as possible, nutriment was administered to the patient in the form of clysters of Leube's emulsion of meat and pancreas. This plan was carried out with the best results for three weeks; in the mean time the healing of the parts operated on made rapid progress.

*Removal of superior maxillary and malar bones without external incision.*—Dr. Hutchison records the case. The operation was performed for phosphorus necrosis. Retractors were used to keep the cheeks separated. The patient recovered. The periosteum was saved. ('Am. Journ. Med. Sci.,' Jan. 1874.)

*Removal of greater part of both superior maxillæ for malignant disease; recovery.*—Mr. Nelson C. Dobson records a case. ('Brit. Med. Jour.,' Oct. 11, 1873.)

*Tumours of the upper jaw.*—Mr. Bryant narrates cases in the 'Guy's Hosp. Rep.,' xix, 108, &c. Dentigerous cyst of the upper jaw connected with the right upper canine tooth. Fibrous tumour growing from the anterior plate of the upper jaw. Fibrous sarcoma involving the whole of the alveolar process of the upper jaw. Myeloid dentigerous tumour of right upper maxilla; a most remarkable case. Three operations were performed involving each time a naso-labial single incision for excision of the superior maxilla, owing to recurrence of the growth; at the last operation the soft structures covering in the palate portion of the growth were turned back with a raspatory. When the removal of the growth was accomplished these parts were brought up and stitched to the mucous lining of the cheek, and in this way a complete palate was formed. The incision in the cheek healed each time well. The patient was a girl, æt. 8. Tumour of the left superior maxilla

(carcinoma). Illustrations of these various cases, naked-eye and microscopic, are given.

*Tumours of the lower jaw.*—Mr. Bryant narrates cases ('Guy's Hosp. Rep.,' xix, 126). Tumour of the inferior maxilla (fibroma); excision; recovery. The patient was a man, æt. 25. A portion of the inferior maxilla was removed with the growth attached. Illustrations of the naked-eye and microscopic appearances are given. Spindle-celled periosteal sarcoma of the right ramus of the lower jaw; removal of one half of the jaw. The periosteum was separated above the angle of the jaw, the insertion of the muscles being left and the vessels protected. The bone was easily twisted out. Illustrations are given.

*Removal of large fibro-cystic tumour of the lower jaw; recovery.*—The patient was a man, æt. 42, under the care of Mr. Reginald Harrison. The tumour was large and felt of the hardness of cartilage. After incisions through the soft parts the lower jaw was divided on the right side behind the canine tooth. An attempt to disarticulate was frustrated by the jaw giving way immediately below the left condyle. This was subsequently dissected out. The patient made a rapid recovery.

*Odontome of the lower jaw successfully removed without division of the bone.*—A woman, æt. 17, came under the care of Mr. Annandale for a tumour of the lower jaw. She had never had any lower molar teeth on the left side. Nine months before she first observed a swelling on that side. An abscess soon after formed, burst and continued to discharge. Examination detected a tumour the size of a hen's egg, very hard to the touch, and including the entire thickness of the bone for an extent of two inches in front of the left angle. The patient was placed under chloroform and an attempt made to extract the tumour through the mouth without dividing the bone. At first the attempt seemed unlikely to succeed, but finally the tumour yielded and came out entire leaving a large cavity behind. A figure of the tumour is given. Microscopically it was shown that a cap of enamel, varying in thickness, was arranged over a portion of the irregular surface of the tooth mass. Beneath this, well-formed dentine, possessing a considerable thickness, was met with; and still deeper in the substance of the mass, true bone, containing lacunæ, canaliculi, and Haversian canals was seen to be intermingled in a confused manner with portions of dentine so as to form the substance called by histologists "osteo-dentine." It appeared to be a well-marked example of those rare growths connected with the teeth which have been termed by M. Broca "odontomes." The case shows the practicability of entirely removing these tumours, although firmly fixed, without division of the jaw itself. It represents one or more absent teeth. ('Edin. Med. Journ.,' Jan. 1873, p. 599.)

*Tumour of lateral portions of the lower jaw removed without external wound.*—Mr. Maunder narrates a case of myeloid tumour, in which he removed a large portion of the lower jaw (from beyond the symphysis on one side to the middle of the vertical ramus on the other) through the mouth without external wound. ('Med. Times and Gaz.,' July 4, 1874.) In the following number a second case of tumour is narrated in which a large portion of the jaw was removed in a similar manner. Illustrations are given.

*Necrosis of the jaw, &c., from phosphorus; removal of the lower jaw and reproduction of bone.*—Mr. Savory records the case of a lad, æt. 18, who had necrosis of the lower jaw from the fumes of phosphorus. The whole of the lower jaw was removed. At that time there was no evidence of the production of bone, but in the course of a week or two there was perceptible firmness about the angle on each side. The disease attacked the upper jaw, &c., and the lad died six months later. A new lower jaw was found to have been formed. A drawing of it is given. In size, shape, and development it is very remarkable. The bone is solid and dense, and in two pieces only. The greater portion constitutes the whole of the bone, with the exception of the right ramus. This was united to the body by fibrous tissue and separated during maceration. In size and form and especially in the absence of the alveolar portion, the jaw very nearly resembles the edentulous maxilla of a very old person. Fragments from the surface of the left angle removed for examination differed in structure from adult bone chiefly in the want of well-marked canaliculi and of well-defined laminæ. No doubt in deeper portions the bone is yet more perfect in structure. ('Med. Chir. Trans.,' lvii, 177.)

*Removal of nearly the whole of the lower jaw for necrosis in a child, followed by the formation of new bone replacing the old jaw and admitting of free motion.*—A case is recorded by the present compiler in which the whole of the lower jaw, with the exception of the condyle and coronoid process of the right side, was removed through the mouth. The subsequent growth of the bone was remarkably complete. No cause could be assigned for the necrosis. ('Path. Trans.,' xxv, 204.)

*Necrosis of the body of the sphenoid bone; removal of the whole body through the mouth; recovery.*—The patient was a man, æt. 43, under the care of Mr. Erichsen. ('Medical Times and Gazette,' Jan. 4, 1873.)

*Epitheliomatous tumour of the superior maxilla; excision of the disease and application of escharotics.*—Mr. Lawson in a case of epitheliomatous tumour involving the cheek and antrum removed the disease as far as possible without excising the superior maxilla, then applied the actual cautery freely, and finally chloride of zinc paste spread on pieces of lint. Twice during the progress towards convalescence the growth began to recur, and on each occasion the patient was put under the influence of chloroform and the hot iron and chloride of zinc paste applied. The patient was ultimately thoroughly cured. The case exemplifies an efficient mode of dealing with a large epitheliomatous growth from the antrum without the danger to life which a complete removal of the superior maxilla with the knife, together with all the integument which was involved, would have engendered. The deformity also was less. Patients advanced in life bear large cutting operations badly, whilst they bear with but little shock the destruction of large growths by escharotics. ('Clin. Soc. Trans.,' vi, 20.)

*Bony anchylosis of the hip successfully treated by subcutaneous division of the neck of the femur.*—Dr. H. B. Sands ('New York Med. Journ.,' Dec. 1873) records the case of a man whose hip anchylosed at an awkward angle after rheumatism. A long, straight knife having

been thrust through the soft parts just above the great trochanter and carried directly in front of the cervix femoris, a narrow saw was then inserted and the neck divided. The bone was firm and it took twenty-five minutes to divide it. It was necessary to divide the adductor longus and the tensor vaginæ femoris. When this had been done the thigh was immediately and readily extended to a right line with the body. A weight was attached to the leg. Bony union did not result in the straight position at the end of six weeks. When last noted, after some months, he could use the limb well and had a false joint at the hip. His knee had become stiff from another rheumatic attack. ('Am. Journ. Med. Sci.,' Jan. 1874.)

*Subcutaneous osteotomy by the chisel.*—Dr. Popp, of Ratisbon, describes in the 'Aerztliches Intelligenz-Blatt,' No. 32, 1873, three cases in which he performed subcutaneous osteotomy after the manner recommended by Prof. von Nussbaum, of Munich, whose assistant he formerly was.

Like other surgeons, Nussbaum divides the operation into two stages. In the first the bone is only partially divided, and its complete separation is not effected until the wound in the soft parts is completely healed, so as to avoid a complicated fracture. Instead of using a saw for the division of the bone, he employs a hammer and chisel. The advantages of this method are said to be the following: 1. The operation is more easily performed than with the saw; which is, moreover, liable to break. 2. The track of the wound is not soiled with bone-splinters. 3. Reaction is comparatively less. In applying the chisel the limb should be securely fixed, the chisel applied somewhat obliquely, and numerous short blows should be given with the hammer, so as to avoid splintering of the bone. When the surgeon believes that he has cut through about three fourths of bone, the chisel should be struck right and left with the hammer, so as to loosen it.

Nussbaum has operated in this way in cases of ankylosis of the hip and knee, and of ricketty bending of the tibia and fibula.

Popp's three cases were instances of bow-leg; in two, both legs were operated on at the same time, and in one, one leg only. One case is related, that of a boy, æt. 2, who was admitted into hospital on April 25, 1872, with curvature of the legs from rickets to such an extent that the soles of his feet could not touch the ground. On the 29th Dr. Popp operated, chloroform having been given. The limb having been fixed, an incision was made at the point of greatest curvature—about the middle of the tibia, and a chisel having been applied rather obliquely, was driven through about three fourths of the bone by short strokes with a hammer, and then withdrawn. A similar process was followed with regard to the fibula. There was very little hæmorrhage. The wound having been dressed, the operation was repeated on the other leg.

The operation was followed by very slight constitutional disturbance, and the wounds healed with but trifling suppuration. On May 21st the second stage of the operation—the fracture of the bones—was performed under chloroform. The leg was laid with its most curved part on the rounded and well-covered edge of a table, and, being firmly held

below the knee and above the ankle, was firmly pressed downwards. Fracture of the tibia, then of the fibula, took place with an audible snap. The leg was then fixed in splints and plaster of Paris bandage, which was renewed (in consequence of becoming dirty) on June 3rd and 15th. The healing of the fractured bone took place without any complication, and in the course of July the child was able to walk and run well, placing the soles of his feet on the ground in the ordinary manner.

*Antiseptic osteotomy.*—Prof. Lister has communicated a paper by Prof. Volkmann, of Halle, on two cases of antiseptic osteotomy for anchylosis of the knee. Both patients were girls almost arrived at puberty and crippled by the condition of the limb. The author thinks such operations would scarcely be justifiable were it not that by the antiseptic plan of treating we may be sure of a successful result. The femur only was divided with a chisel in the first case and both tibia and femur in the second. ('Edin. Med. Journ.,' and Reprint.)

*Excision of the supra and infra-orbital branches of the fifth; of the perineal; external popliteal and posterior tibial nerves in cases of neuralgia.*—Dr. Morton details cases. The method of reaching the infra-orbital nerve varied in each of the three cases. The plan last adopted was the best. After the cutaneous incisions had been made and the lower edge of the orbit was reached, the eye and the adjacent soft parts were pressed upwards from the orbital floor, the nerve canal was punctured far back, and the very delicate bony covering was then broken up anteriorly the full extent. This method is the simplest, the least severe operation, and ensures the most rapid recovery. A curved hook, figured, was used to pick up the nerve. After the excision of the infra-orbital branch of the fifth pair, total facial anæsthesia followed on the excised side in each instance. In the first two cases this has completely vanished with the return of normal sensibility, showing conclusively that permanent paralysis of sensation need not be apprehended after these nerve excisions. The line bounding the space of skin anæsthesia could be traced in each case along the median line, from the root of the nose downward to, and involving half of, the upper lip, thence outward from the angle of the mouth about an inch and a half, then directly upward to the external angular process of the orbit. The first case of excision of the infra-orbital nerve was for neuralgia of the most excruciating character, and which had existed for more than fifteen years; there was entire relief for a long time; in fact, there has never (for three years) been any pain at the original seat of suffering. The second was a most distressing case of terrible neuralgia, which had existed for upwards of thirty years; more than two years and a half have elapsed since the nerve excision, and the patient continues perfectly well and has never had the slightest return of the old malady. The third case of excision of the infra-orbital nerve was for blepharo-facial spasms without neuralgia, which had existed for twenty years with a sensitive infra-orbital nerve; the patient was in a miserable condition, and was desirous to undergo any operation which held out the slightest chance for any alleviation. There was great improvement at the end of a few months (date of note). In a case of blepharo-spasm, in which the supra-orbital nerves

were excised, eighteen months' constant use of the eyes had thoroughly tested the value of the operation. In a case of stump neuralgia (Pirogoff) a useful limb was saved, upon which the patient could sustain his entire weight without any artificial appliance, by the excision, first, of the posterior tibial, and, subsequently, of the external popliteal nerve. The case of excision of the perineal nerve was one of vaginal neuralgia of twelve years' duration in a patient æt. 42. The pain was most intense, especially on pressure. All remedies had failed, including a seton above the groin. The deeper the pressure the greater the pain, and a firm cord was discovered which could be rolled about under the finger. It was fully as large as, and very much resembled, a spermatic cord, and was extremely painful to the touch. It was considered to be the perineal nerve. As the seat of pain was evidently in it, its excision was advised. A deep vertical incision brought into view the cord, which was removed to the extent of an inch. It proved to be a dense hypertrophied nerve, otherwise not altered in structure. A year later there was no pain. ('Am. Journ. Med. Sci.,' Oct. 1873.)

*Traumatic neuralgia; section of median nerve.*—Dr. S. Weir Mitchell records the case of a lady who ran a splinter into the palm of the right hand when two and a half years of age. The wound healed over. At the end of twenty years, pain came on (after injury) in the shoulder, thumb, &c. The splinter could be felt and was removed. This did not give any relief, but rather made matters worse. Subsequently, as pressure on the musculo-spiral gave relief, an inch of it was removed above the elbow. Cessation of pain, &c., followed. The sense of touch was not interfered with. The pain returned on the eighth day after the operation. A little more than a year later she came under Dr. Mitchell's care. The symptoms are detailed most carefully in every respect. The pain, sensitiveness to touch, &c., were intense. Believing that all the symptoms were dependent on mischief in the median, a portion of this above the wrist was removed, and the lower end of the exposed nerve was turned in a transverse direction into the tissues and fixed there. The nerve ends retracted greatly. The relief was complete. The author remarks on the case at length. The trouble began when the point where the splinter lay was struck. It is difficult to say what was the nature of the process then set up, but it was certainly irritative in character and was suddenly made worse by the operation in which the foreign body was removed. This irritation produced remote effects. The fact that no loss of sensation resulted from section of the musculo-spiral was probably due to other nerves overrunning the territory of the musculo-spiral. The thermometric observations are given. There was increased heat at first—coldness afterwards. The microscopic appearances in the portion of nerve removed are noted. The changes began in the nerve-fibres themselves. ('Am. Journ. Med. Sci.,' July, 1874.)

*Case of exsection of the brachial plexus of nerves for the relief of painful neuroma of the skin.*—In a case of neuroma of the skin of the arm, previously recorded by Dr. Duhring, Dr. Maury removed the cords of the brachial plexus for the relief of the pain. It was expected

this would afford relief to the pain, except in a portion of the integument of the neck and shoulder posteriorly, supplied by the third cervical nerve. The posterior border of the sterno-mastoid having been made tense, an incision was made along it and thence along the clavicle. The external jugular vein was held out of the way, and the cellular tissue having been torn, &c., with the handle of the scalpel, the omohyoid was exposed, its posterior belly held aside, and the outer cord found. This was carefully freed, and four fifths of an inch of it removed. The inner cord was sought for, freed, and a portion of it removed. The patient was relieved, save that he was liable to paroxysms of pain in the skin over the shoulder, &c. He remained in the same state at the end of five months. The temperature rose at first, and then descended below normal. The arm is, of course, completely paralysed, but the patient is thankful to have relief from the pain. An account of a microscopic examination of the portions of nerve removed is appended. ('Am. Journ. Med. Sci.,' July, 1874.)

*Neuralgia treated by stretching the median nerve.*—Mr. Callender records a case. He made an incision over the median nerve above the elbow (amputation had been performed at the elbow), and detached the nerve from the surrounding tissues with the exception of its extremity, which was left as fixed. The nerve trunk was considerably increased in size. After its isolation it was seized with a vulsellum and then drawn down from the plexus. Very considerable force was used, but the nerve yielded very little. Two months later the patient was quite relieved of his symptoms. ('Clin. Soc. Trans.,' vii, 100.)

*Neuralgia of the hand treated by amputation of the little and ring fingers and of part of the index finger.* Mr. Callender records a case. ('Clin. Soc. Trans.,' vii, 104.)

*Multiple neuroma cured by neurectomy.*—A man, æt. 30, had on the posterior and outer part of his right thigh more than a hundred neuromata varying in size from a pin's head to a hazel-nut. As their extirpation was impossible, and all means failed to relieve the pain, Prof. Kosinski, of Warsaw, excised a portion of the inferior gluteal nerve an inch long. The result was that not only the pain and tenderness in the neuromata ceased immediately after the operation, but the tumours themselves began soon to diminish, and four months afterwards most of them had entirely disappeared, and those which remained were quite painless. ('Centralblatt für Chirurgie,' Nov. 16, 1874.)

*Removal of alveolar process for neuralgia of inferior dental nerve (Gross' operation); cure.*—The patient was a man, æt. 47, under the care of Dr. Hutchison. He had suffered from neuralgia for two years. His teeth had been removed. A portion of the alveolus an inch and a half in length was removed, the periosteum being preserved. ('Am. Journ. Med. Sci.,' Jan. 1874.)

*Tenotomy in adduction of thighs.*—In a clinical lecture on infantile paralysis and the deformities resulting therefrom, Mr. Barwell describes an operation he has repeatedly performed for separating the thighs when they are adducted and fixed. He gives an explanatory diagram. The origin of the adductors occupies a considerable space on the pubis and ischium surrounding the obturator foramen; the

nerve and artery that supply them come into the thigh at the upper and outer corner of this opening; hence by a judicious selection of the spot for puncturing with the tenotomy knife, and of the place and direction of the incision, it is quite possible to divide all this mass (except the outer portion of the pectineus, which is crossed by the femoral vessels) without injuring any nerve or artery. Bleeding may be prevented by keeping the knife close to the bone. The surgeon stands on the side, an assistant abducts, making the adductor longus prominent. The tenotome is entered at the outer side of the tendon close to the bone and made to cut from without inwards. Then the gracilis with bands of fascia become tense and are divided in the same direction, taking care (in the male) of the crus penis. The finger of the left hand being now placed on the tuber ischii as a guide to the direction, the tenotome is passed downwards till it is felt beneath the skin with the guiding finger, and then the adductor magnus and brevis are separated from the bone, still cutting from without inwards. If the pectineus resist, as is usual, the inner half may be cautiously divided, the rest will yield. He performed this operation on both sides in the case of a lady who after marriage found she could separate her knees but very slightly. ('Lancet,' June 28, 1873.)

*Rickety deformities of the legs treated by operation.*—Mr. Howard Marsh contributes a paper on this subject. In three cases the tibia was so far divided with a fine saw that it fractured on bending it. In a fourth, a wedge of bone was removed from the tibia, and the fibula was cut in the right leg and broken in the left. Figures are given of the condition of the latter patient before and after operation. ('Med. Chir. Trans.,' lvii, 145.)

*Blood-cyst of the hand.*—Mr. W. Haward records the case of a woman, æt. 43, who had noticed a swelling of the metacarpo-phalangeal joint of the right thumb for two years. Latterly it had increased rapidly. The tumour had been punctured and only blood escaped. The swelling was laid open (Esmarch's bandage having been applied) and a cyst found containing altered blood-clot. The contents were turned out, but the wall left. The cyst-wall and contents showed spindle-shaped cells with oval nuclei.

*Rifle-shot wound of the ankle; lodgment of the bullet in the tibia; removal.*—Mr. Thomas Annandale records the case of a man, æt. 30, who was wounded in the ankle by a rifle-shot. There was only one wound. A portion of a bullet was extracted from the cancellous texture of the lower end of the tibia and another portion had previously been found. The bullet had been split by coming in contact with some hard substance. The case proves that a conical ball or a portion of it may penetrate and lodge in a bone without fracturing its entire thickness or causing fissuring of it. ('Lancet,' Dec. 26, 1874.)

*Action of rifle-bullets on the body.*—Prof. W. Busch ('Archiv für Klin. Chirurg.,' xvii) has made experiments on the action on certain parts of the body, especially the skull and extremities, of projectiles of various metals discharged from the Chassepôt and needle guns, and other weapons. A Chassepôt bullet, discharged from a short distance against a skull, tore it asunder like an explosion, so that the brain sub-

stance flew out in all directions, even against the course of the ball. This observation showed that, in addition to the dispersion of melted portions of metal and the centifugal force imparted to them by the rotatory action of the ball, another factor must act. Experiments on metallic vessels filled with water or with cerebral substance, and those made with smooth-bored weapons, showed that the explosive action is a result of the equal propagation of the blow in all directions in the fluid or in the brain.

In the long bones, the medulla played a similar part to that of the brain in the skull. A macerated long bone, in which a hole had been made by a small projectile, was filled with soft fat, and the opening, as well as the transverse section of the medullary cavity, cemented. A shot was discharged against the middle of the bone, when it burst into splinters in all directions.

The greater the propulsive force of the ball the greater is the amount of destruction.

In some experiments on the effect of sudden arrest of motion in bullets, Busch found that they were partly split into fragments with sharp angles and rough surfaces, and partly melted into small globules, some being of microscopic smallness.

Regarding the Chassepôt gun, Busch found that its action from a short distance might be confounded with that of explosive bullets; the action of the needle gun is similar, though less, in consequence of the smaller projectile force. He found also that the Prussian cuirass protected against shots coming from a distance; but that at closer ranges, through the splintering of the ball and the flying off of fragments, the cuirass, instead of protecting the body, increased the action of the balls.

*Tooth-edged cutting scissors.*—Dr. Richardson figures a pair of saw-like scissors which make perforations in any structure like the holes between postage stamps. A lateral or half rotating movement separates the tissue. They pierce, crush, twist, and control bleeding remarkably. ('Med. Times and Gaz.,' Dec. 20, 1873.)

*Exploring and tapping.*—Dr. Roberts figures and describes a syringe and tubular needle resembling those for subcutaneous injection, elastic tube, &c., and trocar and canula for exploring and tapping doubtful tumours, &c. They have been in use for some years. ('Liverpool and Manchester Med. and Surg. Rep.,' 1873, p. 66.)

*Multiple loose cartilages in the elbow-joint.*—A man, æt. 31, came under the care of Mr. Lister for inability to use his right elbow. He had had more or less pain in moving the joint for two years and a half. Anteriorly, on careful manipulation, there was felt a distinct abnormal projection from the humerus on a level with the external condyle, and therefore in the region of the joint. This was suspected to be a pedunculated exostosis, and it was determined to make an attempt at removing it, though from its position the joint would necessarily be opened. Mr. Lister trusted to antiseptic dressing. An incision, however, opening the joint revealed a great number (200) of loose cartilages, most of them an eighth of an inch in diameter; six of them, however, varying from one fourth of an inch to an inch and a half in

greatest diameter. The larger ones, in the interior, consisted of true bone and medullary tissue, with a cartilaginous external layer and synovial investment, to which small cartilaginous bodies were attached by narrow peduncles. The patient recovered well. Two drainage tubes were inserted, one being removed in two and the other in eight days. The case is noted by Mr. Sampson Gamgee. ('Lancet,' Jan. 10, 1874.)

*Removal of a loose cartilage from the knee-joint under the antiseptic treatment.*—Dr. Lichtenberg records a case ('Brit. Med. Journ.,' Jan. 10, 1874).

*Loose bodies in joints.*—Axel Iversen writes on the operative treatment of loose bodies in joints. He speaks strongly in favour of removal by direct incision under antiseptic precautions. Nineteen cases are cited by the author. One case proved fatal. ('Northern Medical Archives,' 1873. "Report on Scandinavian Medicine," 'Med. Chir. Review,' July, 1874.)

*Progressive caseous disease of the lymphatic glands after disease of the knee-joint.*—Dr. Goodhart details a case, and remarks it is one of the very few instances on record in which, precisely as in the lower animals, a tuberculosis has extended from a local cause in a manner so direct that it cannot be questioned.

*Treatment of inflammation of the knee-joint by permanent extension.*—Dr. C. Reyher, in an article in the 'Deutsche Zeitschrift für Chirurgie,' iv, 1, gives an account of forty experiments made on the human subject with the view of ascertaining the changes which the capacity of the knee-joint undergoes in various positions, the relations of the intra-articular pressure in different degrees of filling of the joints, in different positions, and under the influence of distraction of the joint by weights. The capacity of the knee-joint is greatest when the limb is bent at an angle of 30°, the soft parts being uninjured, and at an angle of 60° in preparations, as Bonnet has already observed. In applying distraction, the state of the muscles (the quadriceps extensor, gastrocnemius, and popliteus) must be observed; if they be rigid, the intra-articular pressure is increased; if relaxed, it is diminished.

When a weight of forty pounds is used, diastasis takes place to the extent of a millimètre, and may reach 3½ millimètres when a weight of 100 pounds is applied. In diastasis of the joint, two conditions are to be observed; viz., the removal of the interarticular pressure by the separation of the articular surfaces, and the stretching of the capsule by removal of its points of insertion one from another, and the consequent increase of the interarticular pressure. In healthy joints, the latter condition does not come into account, for the synovia is in so small quantity that there is room for it between the articular surfaces, and it is not subjected to pressure by the capsule or the muscles. When a joint is artificially distended, if the muscles be in a state of *rigor mortis*, the intra-articular pressure is increased when the weights are increased; if they be flaccid, the pressure decreases until the weights applied amount to 100 pounds, and beyond this it is increased.

In the practical application of these results to surgery, Reyher finds just the same conditions as he showed in the artificially prepared joints of the dead subject. A parallel may be drawn between serous and

purulent synovitis, and even fungous disease and the artificially filled joint. No conclusion, however, can be drawn as to the result of permanent extension from the rapid momentary extension applied to the dead body.

In a case of suppurative inflammation of the knee, in which the joint was opened, a weight of thirty pounds was applied, with the effect of rendering the escape of the secretion free, and reducing the patient's temperature from high fever heat to the normal standard.

In cases of acute purulent or serous gonitis, where immobilisation and the application of cold have had no effect, distraction may be tried, but with care, for if the joint has been brought into a state of flexion by the filling of the capsule, the extension which precedes distraction produces an increase of the intra-articular pressure, and may thus lead to rupture of the capsule. In such cases, the fluid contents of the joint should be removed by puncture (and aspiration).

In chronic hydrarthrosis, Reyher does not expect much from distraction; in any case not so much as from forcible compression.

The action of extension in fungous gonitis is explained by Reyher more by the immobilisation, the increase of the intra-articular pressure, and the change of the points of contact of the cartilages, than by a diminution of the pressure of the parts of the joint against each other.

*Caries of the knee-joint treated by the local application of sulphuric acid.*—Mr. J. Warrington Haward relates the case of a boy, aged 8, suffering from chronic synovitis of the knee, with formation of abscesses, sinuses, &c. He was much reduced by the disease. On examination under ether, the ligaments of the knee were found to be destroyed, allowing free lateral motion; the cartilage was removed from a great part of both articular surfaces and the joint ends had numerous carious patches on them. A solution of sulphuric acid (one part of strong acid to two of water) was then applied to the carious joint ends and to the suppurating synovial membrane; the constitutional disturbance was scarcely at all increased by this proceeding, but at the end of a week numerous parchment-like sloughs came away through the openings into the joint and the amount of discharge and pain began rapidly to diminish and the health quickly improved. Two months after the application of the acid, the sinuses had all healed, but one; the boy was free from pain and quite cheerful, had gained flesh and could eat and sleep well. Scott's dressing was applied and the joint kept in a splint for four months, when the bones seemed firmly anchylosed. The result was good and permanent. ('Clin. Soc. Trans.,' v., p. 13.)

*Anchylosis and ulceration of the knee-joint following long rest in the extended position, from a case of ununited fracture of the femur treated with steel pegs.*—The patient was a woman aged 50. After long treatment (unattended by any complaint of pain or sign of disease about the knee) the limb was amputated. Firm anchylosis of the knee and "pitting" ulcerations of the cartilages were found. The anchylosis was first observed six months after the injury. The holes formed by the pegs had increased in size; thus the long continuance of the pegs *in*

*situ* had given rise to absorption and not new formation, but a considerable quantity of new bone was found around the points of entrance and of exit of these pegs. Mr. Butlin records the case, under the care of Mr. Callender, 'Path.Trans.,' vol. xxv, p. 212).

*Treatment of chronic strumous synovitis, more especially of the knee.*—Mr. Barwell ('Brit. Med. Journ.' Oct. 17, 1874), has practised injections with iodine. Latterly he has used a solution of half a drachm to the ounce. A syringe with a very fine needle should be used and care must be taken not to inject into the cavity of the joint, but into the thickness of the morbid tissue. Injection must not be practised when any active inflammatory process is going on. The softest and most prominent parts of the tumefaction are selected and from two to four punctures made, about five minims of the solution being injected into each, the needle being withdrawn as the piston descends. Afterwards pressure with an elastic bandage is used.

*Tapping the knee-joints in arthritic disease.*—A man aged 40, under the care of Dr. Ramskill, had both knee-joints tapped with advantage for synovitis of some weeks' duration. ('Brit. Med. Journ.' Nov. 14, 1874.)

*Suppuration of the elbow-joint; puncture; recovery.*—Mr. Mac Cormac narrates the case of a lad, aged 16, whose elbow-joint was swollen apparently from acute suppuration. The joint was punctured with a fine aspirating trocar and cannula, and three or four ounces of pus, &c., removed. The puncture healed at once. The elbow was kept in a splint for six weeks. He was under notice for some time and the cure remained permanent and complete. ('Clin. Soc. Trans.,' i, 113.)

*Acute arthritis of infants.*—Mr. Thos. Smith writes on this subject. The affection, according to his experience, occurs within the first year of life and is characterised by the suddenness of its onset and the rapidity of its progress and termination, whether the latter be of a fatal or a favorable kind. It is very dangerous to life and intensely destructive to the articular ends of the bones, which of course, at this period of life, are largely cartilaginous. Another feature is that it rarely produces anchylosis, but leaves a child with a limb shortened, by loss of part of the articular end of some bone and with a weakened flail-like joint. Eight cases occurred in infants under a month old; four cases under two months; seven between two and six months, and and in three between six months and twelve. In all the cases, the disease first attacked either the shoulder, hip, or knee, and often more than one joint was subsequently affected in the same infant. The disease was ushered in with restricted movement and usually flexion of the joint affected followed by pain, swelling, and rapid suppuration within the joint; the redness of the skin was often but little marked until the abscess was on the point of bursting. After the abscess had opened, or had been punctured, if recovery took place the discharge generally ceased to flow much sooner than is usual in ordinary cases of suppuration within the cavity of a joint. When death occurred, it resulted from exhaustion from local suppuration, or, as one may believe in certain cases, from this together with a general condition of pyæmia,

with secondary affection of internal organs. On post-mortem examination in all instances there was a considerable and rapid loss of substance in the articular end of one of the long bones entering into the joint affected. In some cases this proceeded from the joint surface towards the deeper parts. In others the destruction of tissue had commenced in abscess within the articular end of the bone, which, after excavating and destroying more or less of the interior of the bone, had burst into the joint by a small opening near the margin of the articular cartilage. In one case an abscess cavity was found on section of the bone beneath the articular cartilage. The name subarticular abscess is applied to abscess cavities formed beneath the articular cartilage, either in the cartilaginous or osseous structure of the end of the bone. It seems that in many cases the formation of a subarticular abscess in the bone must have been the first step in the joint affection, since, while the articular end of the bone was extensively excavated, the aperture through which the abscess had burst into the joint was a mere pin-hole, and though the joint contained pus the articular cartilage was apparently healthy.

Illustrations of the conditions mentioned are given. Notwithstanding the destructive nature of acute arthritis in infants to the parts affected and its danger to life, as illustrated by the foregoing cases, there can be no doubt that many children not only survive the attack, but recover with useful joints; and experience proves that this result may be obtained even where more than one joint is the seat of suppuration. Mr. Smith has seen instances, both in the elbow and knee, where a perfect recovery, with good movement, has taken place, even after the articular ends of the bones have been freely exposed to view by abscess within the joint and ulceration of the integuments. ('St. Barth. Hosp. Rep.' x, 189.)

*Anchylosis of hip resulting from disease in early life.*—Dr. Bennett describes a specimen and gives the history of the case ('Dub. Journ. Med. Sci.,' August, 1874).

*Complete bony anchylosis of the hip.*—Dr. E. H. Bennett describes and figures specimens. One showed anchylosis after a gunshot injury. Another showed anchylosis with a false joint in the neck; two others were specimens of old morbus coxæ; and a third probably belonged to the same category. In two others the head had sunk into the acetabulum. Mr. W. Adams' operation would have been applicable in almost all. Eight other specimens are alluded to. ('Dub. Jour. Med. Sci., June,' 1874.)

*Treatment of Hydrarthrosis.*—Bergeret ('Lyon Méd.,' iv, 12, 1874) recommends the following treatment in rheumatic, traumatic, gouty, and other forms of hydrarthrosis. The diseased part is wrapped in wadding or wool, and then a bag containing two or three pounds of hot sand is to be laid on it, so as to surround the joint and a thick towel is applied over the whole. This treatment is to be commenced after the febrile stage has ceased. When inflammation is commencing, lukewarm compresses are to be constantly applied. Dr. Vanzetti has also employed hot sand in the hospital at Padua, with much success, in

the treatment of gonorrhœal orchitis, enlargement of glands, and indolent ulcers.

*Abscess in the bursa under the tendon of the iliacus internus muscle.*—A man, æt. 28, was admitted into King's College Hospital for disease about the left hip. There was a sinus in front of the upper part of the thigh, external to the femoral artery, and a probe could be passed along it for a distance of six inches upwards and slightly backwards, beneath the tendon of the iliacus muscle, touching bare bone posteriorly at the pelvic brim on its way to the venter of the ilium. The limb could not be straightened owing to a well-marked increase of tension of the combined psoas and iliacus tendons. The sinus was dilated and the finger passed in. A counter-opening was then made and a drainage tube inserted. Mr. Wood regarded the case as originally one of inflammation and suppuration of the bursa beneath the iliacus over the brim of the pelvis, leading on to inflammation of the adjoining periosteum and slight superficial necrosis. The pus makes its way along the tendon to the lesser trochanter and then backwards to the lower margin of the gluteus and forwards to the front of the thigh. The joint was movable and free from grating. ('Lancet,' April 5, 1873.)

*Treatment of cases of necrosed bone.*—Mr. H. G. Howse insists on the importance of cutting away the case of new bone freely in operating for the removal of sequestra. He also scrapes away the granulations lining the cavity. ('Brit. Med. Journ.,' April 11, 1874.)

*Abscess of the tibia.*—Mr. Savory gives a clinical lecture on the case of a man, æt. 21, who had been liable for four years to attacks of pain and swelling in the upper part of the left leg. When he came under care, there was intense aching pain in the tibia, which was enlarged at the junction of the upper and middle thirds, and the skin over the swelling was discoloured and there was tenderness on pressure. An incision was made through the skin and thickened periosteum and with a small saw through the bone. Pus then welled up and a trephine opening was made. About six to eight drachms of pus were then evacuated. The man recovered well. Mr. Savory says that the trephine has been known to go beside an abscess. He thinks that a straight incision with a small saw is more convenient for revealing the presence of pus and then the trephine can be used. ('Lancet,' June 6, 1874.)

A very similar case was brought under the notice of the Hunterian Society by the present compiler. A lad, æt. 19, was admitted into the London Hospital, Sept. 3rd, 1874, with enlargement of the upper part of the left tibia and with the history of attacks of pain and swelling for four years previously. The skin over the swelling was reddened and pitted on pressure. A few days after admission effusion took place into the knee-joint. An incision was made down to the bone through quite healthy periosteum. A trephine was applied, and healthy bone cut through, till at last an abscess cavity was opened containing about half a teaspoonful or more of pus. The cavity extended some distance above and below and would have contained several drachms of fluid. The lad recovered well.

*Wounds and injuries of the chest.*—Elaborate statistics of cases of wounds and injuries of the chest are given in the Surgeon-General's

Report by Dr. Otis, Washington. Hernia of the lung was observed in seven cases during the war, and in three instances is believed to have ended fatally; ligation of the protruded pulmonary tissue was resorted to in ten of the successful and in one of the unsuccessful cases. In one case the left subclavian was successfully tied for a wound of the vessel, where it passes across the first rib. "Of those killed in battle, from one third to one half, and of those wounded in action, one twelfth, receive wounds of the chest." Traumatic pleurisy was found to be a somewhat infrequent complication of penetrating wounds, and "it is certain that pneumonia in the ordinary acceptation of the term is *not* an invariable sequence of wounds of the lung. It is probable that it is not a frequent sequence." No case of ligation of the innominate occurred during the war, though this vessel was wounded in several instances. Dr. Otis suggests that the proper treatment for a wound of the distal portion of the brachio-cephalic trunk would be to tie this vessel itself in its middle portion, tying also the carotid and subclavian arteries as near their points of origin as possible, and then to amputate at the shoulder. Ligation of the subclavian was performed in 25 cases, 20 of which proved fatal; in two instances, the vessel was secured in its first portion and in two in its second portion, or between the scaleni muscles. In 16 cases, the operation was performed for hæmorrhage, and in nine cases for traumatic aneurism of the axillary artery. The right subclavian was tied in 13 and the left in 12 cases. The total number altogether during the war was 52, of which 41 terminated fatally. Excision of the clavicle (whole) was resorted to twice (fatally) and partial nine times, with five deaths and four recoveries. Partial excision of the scapula, four cases and one death; partial excision of one or more ribs, thirteen cases with four deaths. Of 51 cases of gunshot fracture of the sternum, only 18 terminated fatally. The mortality of penetrating wounds of the chest was not materially affected by thoracentesis, which was performed 28 times with only nine recoveries. ('Am. Journ. Med. Sci.,' July, 1873.)

*Wounds and injuries of the neck.*—Statistics of the wounds, &c., of the neck during the American War are collated by Dr. Otis (Surgeon-General's Report), and given in abstract in the 'American Journ. Med. Sci.,' July, 1873. There were 29 ligations of vessels, with 22 deaths; 14 tracheotomies, with 8 deaths; 6 laryngotomies, with 5 deaths; 2 excisions of tonsils successful and 87 extractions of balls, with 12 deaths. Tracheotomy was performed six times for gunshot wound, with four deaths and two recoveries. The same operation was performed twice and laryngotomy four times for œdema of the glottis, but only one of the six cases proved successful. Three operations were performed for diphtheria, one (laryngotomy) terminating in recovery, but both the others (tracheotomy) proving fatal. Tracheotomy was performed twice successfully for simple laryngitis, and twice—once successfully and once without success—for apnœa resulting from quinsy, as was laryngotomy once, likewise without success. Ligation of the common carotid was performed 21 times, but only once successfully, and ligation of the third part of the subclavian once with a fatal result. Dr. Otis sums up against ligature of the common carotid for wounds of distal vessels.

Anel's operation appears to greater disadvantage than in any other region of the body. "If the indolent or timid surgeon, who, to control bleeding from minor branches of the carotid, prefers to stuff the wound with styptics, or to perform the easy operation of tying the common trunk, rather than seek in the difficult anatomy of the maxillary and thyroid regions to place double ligatures on the bleeding point, he may temporise or may associate his name with the necrology of ligations; but if his patient recover it will generally be found to be under circumstances in which the surgeon's operative intervention was uncalled for."

*Stricture of the trachea following suicidal wound relieved by operation.*—Mr. Lee records the case. ('Clin. Soc. Trans.,' vii, 112.)

*Bronchocele, treatment of, by injection of iodine.*—Dr. Morell Mackenzie has tried Prof. Lücke's treatment with advantage. He injects thirty drops of the officinal tincture of iodine into the substance of the thyroid gland once a week for the first two or three weeks and then once a fortnight. The treatment extends over a long period generally. No irritation (suppuration) followed when the injection was made into the gland itself. The average duration of treatment was four months. ('Brit. Med. Journ.,' Aug. 30, 1873.)

Dr. Morell Mackenzie advocates injections of perchloride of iron in cystic bronchocele. The cyst is first punctured and emptied with a trocar at its most dependent part; a drachm or two (according to the size of the cyst) of a watery solution of perchloride of iron (ʒij ad ℥j) is then injected with a glass syringe and the canula plugged, the iron being left in. After seventy-two hours, the solution is allowed to run out and the plug is reinserted and linseed-meal poultices kept constantly applied. In a few days suppuration is set up and the plug is then permanently removed, the canula being allowed to remain till the secretions become limited in amount and thin in consistency. One injection is generally sufficient, but if the first injection is too quickly removed the process has to be repeated three or four times at intervals of two or three days, and the injection should be repeated from time to time as long as the discharge contains much blood or hæmatin. The injection of air is avoided by using a special kind of syringe. The duration of the treatment is from three weeks to four months. In the fibro-cystic cases, the cysts are first treated and then the fibrous structure afterwards treated by subcutaneous injections of iodine. ('Clin. Soc. Trans.,' vii, 115.)

*Excision of the thyroid gland.*—Dr. P. H. Watson records the case of a young lady from whom he removed an enlarged thyroid gland. The operation was effected by a central linear incision through which the surface of the tumour was readily exposed, with scarcely any bleeding. No sooner were the lateral attachments on one side divided than blood issued copiously both from the tumour and from the vessels. The latter were secured with some difficulty, and a ligature embracing one half of the tumour arrested all further flow. To escape from all further trouble, before dividing the vascular connections on the other side, two preliminary ligatures were passed beneath the superior and inferior thyroid vessels, and the ligatures having been tied the opera-

tion was completed without any further loss of blood. The patient recovered well. In another case, a median incision having exposed the tumour and the fascia over the interval between the sterno-hyoid and thyroid muscles being opened, while the fascial sheath of the gland was carefully avoided, the forefinger and thumb were carried over the margin of the tumour in its upper right-hand corner. The vascular connections of the tumour could now be felt, the right superior thyroid artery was in the grasp of the thumb and finger. An aneurism needle was introduced through the fascial sheath in the middle line, being brought out again at the right side of the level of the equator of the tumour. The needle was threaded, drawn out, and then the ligature was confided to an assistant. The needle was again passed in the situation of its former emergence, guided by the finger and then passed beneath the right inferior thyroidal connections. The same manœuvres were practised on the other side. The four ligatures were then separately tied. The further separation of the tumour was effected by curved scissors. The wound was closed except at the lowest part, where a drainage tube was inserted. The patient did well. In a third case catgut ligatures were used with excellent results. In a fourth and fifth case a good result followed. In the latter case, after the wound had healed, a tumour developed, having all the characters of an aneurism, with venous communication in connection with the right superior thyroidal vessels. After continuing about three weeks it subsided spontaneously. The author remarks that, to obtain the best results—1. The external incision should be free, extending from the larynx to the notch of the sternum, if the tumour is large and spreads widely in a lateral direction. 2. The vessels, arterial and venous, in the superficial incision should be secured as they are divided, to avoid any obstruction of the parts owing to oozing going on. 3. The fascia should be as freely opened as the skin. 4. The investing delicate fascial sheath of the thyroid should be left undivided until the mediate ligature has been effected of the vessels included in their fine cellular sheath. The sheathing, fascial, or cellular capsule of the thyroid gland is only a prolongation of the sheath of these thyroidal vessels. If the capsule is opened, then, in pushing aside the soft parts to disclose the outline of the tumour, this delicate sheath is apt to glide off the surface of the thyroid gland, and should this occur the gland may readily be detached from the vessels by comparatively gentle handling and thus copious hæmorrhage, difficult of restraint, may be occasioned. 5. After the mediate ligature of the thyroidal vessels in their sheathing cellular envelope, the cellular capsule of the thyroid gland should now be opened, and the attachments which still retain the goitre in its position carefully divided by means of scissors curved and blunt-pointed. There should be no tearing away of the gland—no pushing aside parts with any roughness of manipulation. 6. Should bleeding occur it must be recollected that it must take place within the cellular sheath of the vessel, and its prolongation upon the gland in the fashion of an investing capsule, and that if the vessels are to be tied they should be secured along with the cellular sheath. Without this sheath, these enlarged trunks will be found so fragile as to risk

being cut by the ligature; while any attempt to reach the bleeding mouths will usually be baulked by the infiltration by clot of this cellular envelope. ('Edin. Med. Journ.,' Sept. 1873.)

*Removal of a large bronchocele.*—M. Holmes records the case. The patient was a woman, æt. 65, who had suffered from bronchocele for forty years. Of late it had caused her great trouble by its large size. It had inflamed and burst, and discharged a quantity of pus. She was apparently sinking gradually. The tumour was surrounded by appropriate incisions, flaps were dissected off, all large vessels that could be seen were divided between two ligatures, and others tied at once. Its neck was surrounded with the chain of an écraseur to check the hæmorrhage and the mass cut away with an amputating knife. It was necessary to leave a portion of the cyst behind. The tumour weighed a little over seven pounds after removal. The patient survived about thirty-nine hours. The author remarks that this operation hastened the patient's death, and the chance of recovery was small, yet the danger to the patient's life from the disease was sufficient to justify the admitted risks of the operation, seeing that no less dangerous method of treating the disease efficiently could be suggested. This case differs from others recorded in the motive for operation—suppuration caused by the bursting of the tumour, rather than pressure on the trachea, œsophagus or great vessels. ('Am. Journ. Med. Sci.,' Jan. 1873.) In the same number (p. 280) will be found a note of four other cases.

Prof. Michel ('Gaz. Hebd.,' Oct. 1873) removed a cystic bronchocele from a woman, æt. 24. The trunks of the inferior thyroid veins and arteries were divided between ligatures, and the tumour then removed. The patient recovered. ('Am. Journ. Med. Sci.,' Jan. 1874.)

A successful case in a boy, æt. 7, occurred under the care of Mr. Jessop. The growth began four years previously. The tumour was about the size of a small hen's egg and occupied the position of the right lobe of the thyroid. Its only apparent attachment was at the larynx. After an incision through the skin the growth protruded on pressure as by enucleation, except at its inner margin where a broad and deep attachment prevented its complete removal. A needle carrying a strong whipcord ligature was passed through the centre attachment, which proved to be the isthmus. This was tied in two portions. In the centre of the tumour was a cyst containing a dark-coloured fluid. ('Lancet,' Dec. 13, 1873.)

Dr. P. H. Watson records a case in which the trachea was wounded. The tumour impeded respiration. The early steps of the operation were effected as usual; but on clearing the tumour from its attachments after ligature of the thyroid vessels, it was found to be laterally and anteriorly closely connected to the larynx and trachea. A venous trunk was wounded, but bleeding was readily checked by pressure. On attempting still further to clear the trachea an opening was accidentally made into its posterior surface. As the bleeding made its way into the air-passages, respiration became much impeded; the tumour was therefore rapidly detached and all bleeding permanently arrested by the application of ligatures to the open venous trunk. The patient

died in a few hours with symptoms of impeded respiration. Dr. Watson has since operated on another case successfully. ('Edin. Med. Journ.,' July, 1874.)

*Results of thyrotomy for the removal of growths from the larynx.*—Dr. Morell Mackenzie remarks on this subject, and quotes cases already reported. ('Brit. Med. Jour.,' April 26, &c., 1873.) Mr. Holmes notes the final result in a case under his care in the number for May 10, 1873.

Mr. W. P. Thornton relates the case of a man, æt. 24, on whom he performed thyrotomy for the removal of laryngeal growths. Tracheotomy had been previously done. The disease was probably epithelomatous. In another case, that of a child, æt. 2½ years, several warty excrescences were removed. The symptoms recurred, and it was decided not to perform a second operation till the growths could be removed through the mouth. These cases tend to show the difficulty of effecting complete extirpation by the operation of thyrotomy. The first case was undoubtedly one of cancer, and would not have been undertaken but that the aphonia present prevented the patient from following his occupation. In this case dysphagia was produced subsequently, which led to inanition and shortened the patient's life. In a similar case the operation would not be recommended. The second case seemed well adapted for the treatment of thyrotomy. Recurrence, however, rapidly took place. ('Clin. Soc. Trans.,' vi, 90.)

*Traumatic pneumothorax; aspiration.*—Mr. Herbert Page notes a case in which a wound of the lung was caused by a broken rib, and was followed by pneumothorax. Urgent symptoms being present from the first, the chest was punctured four hours after the accident by Dieulafoy's canula, and on exhausting the air from the pleural cavity immediate improvement followed. Blood was drawn into the receiver, and examination the following day revealed dulness on percussion at the base, due to the presence of blood. The aspiration was used three times for the removal of this blood, and the further withdrawal of air from the cavity of the pleura. The patient made a good recovery, and the lung was restored to its normal state. Attention is called to a possible source of danger from hæmorrhage into cavities exhausted of their contents by the aspirator. ('Brit. Med. Journ.,' Aug. 30, 1873.)

*Paracentesis thoracis.*—A clinical lecture on this subject by Mr. Wood is given in the 'Lancet,' May 9, 1874. Cases in which aspiration revealed empyema, and in which it was subsequently necessary to pass a drainage tube through from front to back are narrated. Mr. Wood always incises the skin so as to admit his finger to feel the upper border of the rib below the space to be punctured, &c. In one case, the ribs were so pressed together behind that he could not get his finger between, and on pressing a long probe through an anterior opening he could not feel the point projecting behind. He then judged as well as possible where it should be, incised the skin, &c., and was then able to make the probe project. To allow room for the drainage tube he had to scoop out a piece from the margins of the ribs above and below. In a case in which he could not pass the probe from before backwards, owing to a tough diaphragm of adhesion, he managed to push the point through. He speaks highly of making

counter-openings in cases where empyema has discharged anteriorly. He discusses the anatomy of the parts and the proper place to puncture. Between the fifth and sixth, or sixth and seventh ribs he prefers.

*Cherry-stone in right bronchus ; tracheotomy ; removal of foreign body; death from broncho-pneumonia.*—The patient was a girl, æt. 3. Mr. J. Cooper Forster. ('Guy's Hosp. Rep.,' xix, 25.)

*Foreign body impacted in the right bronchus ; tracheotomy ; no foreign body removed ; recovery.*—Mr. Barwell records a case. ('Clin. Soc. Trans.,' vi, 120.)

*Foreign body in the larynx ; tracheotomy ; recovery.*—A child æt. 8 was admitted under the care of Mr. Holden with the history that she had swallowed or inhaled a piece of wood. It could not be detected by any test, but was supposed to be in the larynx or just below. There was some difficulty of breathing. As this did not improve tracheotomy was performed. No attempt at removal of the foreign body was made, as it was hoped it might be coughed up. This did happen, but the child swallowed it. Twenty-eight hours later it was found in a motion. The child recovered well. ('Lancet,' March 14, 1874.)

*Tracheotomy in membranous croup and in diphtheria.*—Dr. J. G. Ehrhardt records four cases of croup in which he performed tracheotomy. Two of the patients recovered. The first was a boy aged four years and two months. The tube had to be worn for fourteen days before respiration could be accomplished through the larynx, and an exacerbation occurred two days after the wound had closed, but was only of short duration. The other was a boy aged five. The tube was removed on the eleventh day. In the first case, artificial respiration had to be kept up for some time after the operation, as the child was apparently dead. The author strongly recommends the hard-rubber canula in preference to silver. He hooked the trachea forwards. ('Am. Journ. Med. Sci.,' April, 1873.

*Tracheotomy in croup.*—Dr. Buchanan mentions that he has operated more than forty times and saved over one third of the patients. (Address, Clinical Surgery, Glasgow, 1874.)

*Abscess of the larynx simulating croup.*—Dr. Stephenson writes on this subject. 1. The affection is more gradual in its onset and does not endanger life so rapidly as croup. 2. Difficulty in swallowing is in most cases a prominent symptom, and any attempt at deglutition at once induces a paroxysm of dyspnœa. 3. In abscess, change of posture, and especially the horizontal position, aggravates the dyspnœa, and, like the act of deglutition, is apt to induce a paroxysm of suffocation. 4. The cough is low and hoarse and has not the clanging, brassy sound of the early stage of croup. These characters taken together with the history of the case should be sufficient to place one on one's guard for the existence of extra-laryngeal disease. Whilst retro-pharyngeal abscess has obtained distinct place in literature, abscess of the connective tissue in more immediate relation to the larynx is unnoticted by English writers The author narrates three cases and alludes to six others. In the first, the child died without any operative treatment. In the second, an incision was made and pus let out, but the child sank. In the third, at the end of the second week an incision let out pus. The child recovered. In

a postscript he gives an abstract of a paper by Dr. Parry ('Phil. Med. Times,' June 14, 1873) on abscess of the larynx in young children. Two cases are recorded. After two days in the first, slight fluctuation was detected and an incision let out pus and gave relief. The second child died without any operation. ('Edin. Med. Journ.,' Oct. 1873.)

*Primary scirrhus cancer of the larynx; tracheotomy; relief; death.*—Mr. E. J. Cook records the case. ('Lancet,' Sept. 19, 1874.)

*Plum-stone lodged in left bronchus; tracheotomy; expulsion; recovery.*—The patient was a girl, æt. 9, under the care of Mr. Marcus Beck. ('Lancet,' Dec. 5, 1874.)

*Foreign body in the bronchus with obscure symptoms.*—A child aged two years was admitted into St. George's Hospital who had just before swallowed a piece of tobacco-pipe stem. No special symptoms were present. The next day there was dyspnœa, but air entered both lungs freely. The voice was natural. Tracheotomy was performed about sixty hours after the accident, and a probe passed down to try and detect a foreign body. None could be found. The child died a week later. A piece of tobacco-pipe stem, about an inch in length, was lodged in the commencement of the right bronchus, so that its upper end rested on the left side of the trachea, at a spot which was ulcerated. ('Lancet,' June 14, 1873.)

*Scald of the glottis.*—Dr. Corley records the case of a child who recovered from a condition deemed too bad for tracheotomy to be advisable, under the administration of calomel, &c. In seventeen hours, 24 grains of calomel, 6 drachms of mercurial ointment, ¾ of a grain of tartar emetic, and the application of six leeches, were used. ('Dub. Journ. Med. Sci.,' Oct. 1874.)

*Tracheotomy by the galvanic cautery.*—Krishaber related at a meeting of the Surgical Society of Paris on November 26, 1873, two cases in which he had performed tracheotomy by the galvanic cautery; both were cases of growths in the larynx in adults. The galvano-caustic knife was heated to a dark red colour, and the tissues were slowly divided, layer after layer; arterial hæmorrhage, however, occurred during the operation. In one case it was arrested by cauterising with the instrument, but was followed after some hours by severe secondary hæmorrhage; in the other case it was very severe during the operation, and was only arrested by grasping the bleeding part *en masse* with forceps. Krishaber referred also to five cases in the practice of Verneuil and of Burdon, in one of which ligature was required on account of the hæmorrhage.

*Tracheotomy by the actual cautery.*—M. de Saint Germain performed tracheotomy in the following manner on a child three years old, the subject of croup. The situation of the cricothyroid membrane having been ascertained by the finger, the thyroid cartilage was fixed with one hand, and with the other a red-hot probe-pointed bistoury was introduced at the lower edge of the cartilage, the cutting edge being directed downwards, until the absence of resistance showed that the point had entered the larynx. The cricoid cartilage and the first ring of the trachea were now cut through. There was no hæmorrhage; and the

result of the operation was successful. ('Gazette Médicale de Paris,' March 7, 1874.)

*Polypus in the trachea.*—M. Krishaber related at a meeeting of the Surgical Society of Paris, on February 5, 1874, the case of a child aged thirty-two months, who had suffered for four weeks from cough and paroxysms of threatening suppuration, as if it had croup. Tracheotomy was performed, but no membrane was found, and in two days the canula was removed. For some days afterwards the breathing was sometimes free, sometimes difficult. On the seventeenth day the child had a severe attack of dypsnœa, and died suddenly while being undressed for examination. A polypus of the size of a pea was found at the third or fourth tracheal ring.

*Hernia of the trachea.*—At a meeting of the Surgical Society of Paris, on October 1, 1873 ('Gazette des Hôpitaux,' 1873, 129), M. H. Devalz related a case of tracheocele which had come under his notice. Ten years previously, while suffering from an attack of bronchitis attended with violent cough, the man observed a swelling in the middle of his neck, which rapidly increased. It was at first supposed to be a goître. Devalz perceived a peculiar murmur, audible with the patient's voice, and sounding somewhat like a very softly uttered "uwuwu." The width of the neck at the lower part was increased by strong expiration; when the patient coughed a pyriform swelling was formed on each side of the trachea, giving the appearance of hypertrophy of the lateral lobes of the thyroid gland. On inspiration the swelling collapsed. The right lobe of the swelling extended as far as the clavicle; the left did not. The appearance of the swelling could be prevented by pressing on the trachea. The tumour had a smooth surface, was soft, and readily compressible. Examination of the chest gave normal results, except that in the right subclavian region there were amphoric breathing and pectoriloquy, which ceased when pressure was made on the trachea. The opening in the trachea could not be found by palpitation. M. Devalz advised the patient to press on the trachea during coughing, so as to retard the further increase of the sac.

Faucon relates, in the 'Archives Médicales Belges,' for January, 1874, two cases of tracheocele or hernia of the mucous membrane of the trachea. In the neighbourhood of Arras, he had had under his care a man, æt. 54, who had, to the right of his trachea, a swelling of the size of a hen's egg, like a one-sided bronchocele. It differed from this, however, in being soft and elastic, and in being increased in size by coughing, hawking, and blowing the nose. The increase could be felt on the application of the hand. Between the larynx and the sternum, on the right side, was a tumour flattened from before backward, divided into two lobes, of which the upper was the smaller; they had the feel of a rabbit's bladder distended with air. Pressure on the vessels above and below produced no change in the tumour. Percussion gave a tympanic sound, establishing the diagnosis of a hernial protrusion of the trachzal mucous membrane, filled with air. The patient had had the swelling for ten years. It was at first of the size of a walnut, it commenced above and extended downwards. At first it appeared only when the man exerted himself, and receded

spontaneously or under slight pressure. In reducing it the escape of air could be perceived by the finger; but no sound was produced. The difficulty of reduction increased with the duration of the swelling, and to the end of the patient's life it remained as a visible tumour as large as a hen's egg. His voice was like that of a woman. He said that the tumour first appeared during the act of vomiting. As he had suffered for many years from frequent attacks of bronchial catarrh, the origin of the swelling might be due to the repeated paroxysms of coughing.

In a second case, a child a year and a half old, with a congenital deformity of the lower jaw and lip, and of the neck and sternum, had a swelling of the neck, regarding which it was uncertain whether it was a dilatation of the internal jugular vein or a hernia of the tracheal mucous membrane. On performing a plastic operation it was found that there was a tumour unconnected with the vessels, along with a tracheocele. The latter was produced by exertion, receded spontaneously, and could also be reduced. It was diagnosed to be the result of a congenital defect in the lining membrane of the trachea.

*Pneumothorax following perforation of the rectum by a vine pole.*—Rosenberger relates in the 'Berliner Klinische Wochenschrift,' April 6, 1874, the case of a boy, æt. 15, who fell from a tree on a vine pole, which passed about 13 inches into the rectum. He drew it out and returned home. The next day he had slight meteorism, but no pain in the abdomen; there was pneumothorax on the left side, limited to the lower half of the chest. This increased during some days, then the chest became rapidly filled with fluid, which, however, soon decreased. The patient's general condition was good and his temperature normal. After fourteen days of apparent improvement, the patient being able to sit up daily for some hours, he was suddenly seized with severe pain in the left chest and violent fever; the exudation increased, and the patient gradually sank and died on the thirty-seventh day after the injury.

On post-mortem examination there was found to be pericardial exudation; the left lung was compressed, and gangrenous in a great part of its extent; the pleural sac contained fœtid gas and fluid, and disintegrating solid exudation. In the diaphragm, on the left side, was a slit-shaped perforation, in which a perforated portion of the fundus and a part of the anterior wall of the stomach, along with mesentery, had become adherent. There was no peritonitic exudation on the anterior surface of the liver. The intestine was perforated at the front only, a little more than three inches above the anus; the wound was cicatrised externally.

Rosenberger believes that the pneumothorax was produced at first by perforation of the lung, and that the communication between the stomach and pleura was formed subsequently.

*Passage of a blade of grass through the right lung and chest-wall; pneumonia; abscess; recovery.*—Dr. Day records the case. ('Clin. Soc. Trans.,' vi, 126.)

*The use of the pneumatic aspirator.*—Cases illustrating the use of the pneumatic aspirator in pleurisy, empyema, &c., are given in the 'Med. Times and Gazette,' June 13, 1874. The patients were under the

care of Drs. Sansom and Cayley at the North-Eastern Hospital for Children.

*Septicæmia and the catheter.*—Dr. Ferrier says urine is not prone to decompose unless some foreign body be introduced. The catheter is just such an agent. He kept some urine in a flask stopped with cotton wool for a year without its undergoing any change. ('Brit. Med. Journ.,' April 19, 1873.)

*The calibre of the male urethra.*—Dr. F. N. Otis has in his possession a mulberry calculus measuring an inch and a half in the largest circumference and an inch and an eighth in the smallest, and weighing just twelve grains. It was passed by a patient per urethram without inconvenience. He mentions eight cases in which he has found urethras would take a No. 34 French scale (an inch and a half in circumference) bulbous sound; two cases in which No 36, and one in which No. 40 (one inch and three quarters in circumference) would pass. The meatus is often much smaller than other parts of the urethra. He figures an instrument for measuring the calibre of the urethra. It is introduced as a small bulbous sound, and admits of dilatation at one part, the dilatation being read off on a scale at the handle. He calls the instrument a "dilating bulbous sound." ('Lancet,' July 11, 1874.)

*Simple apparatus for retaining a flexible catheter.*—Dr. Will describes and figures an apparatus for retaining a flexible catheter in the urethra. It consists of a ring made of thin soft elastic material, generally known as dentists' rubber-sheet; and of two strips of the same or of inelastic, material. The ring is passed over the glans penis into the constriction or cervix behind the corona; the slips are then to be brought forward and attached to the catheter by a thread or by means of a little gutta-percha solution. The construction of the appliance is the work of a few moments, narrow strips being cut from a sheet and fastened by the solution. If the plug for the catheter is long enough to go for some distance, there will be less difficulty in retaining the instrument. ('Lancet,' Feb. 21, 1874.)

*Modification of the flexible catheter.*—Dr. Cowan, having found the need of a flexible catheter which should still be stiff enough to allow of being pushed along the urethra, in a case of enlarged prostate, in a curved form, thought of inserting a spiral coil of wire within the catheter. He found it answer very well. He has also tried stiffening the catheter with an elastic watch-spring stylet. Both plans are described at length. ('Am. Journ. Med. Sci.,' April, 1874.)

*Treatment of prostatic retention of urine.*—Mr. Hutchinson describes and figures a catheter and other aids, which he is in the habit of using in cases of prostatic retention. The catheter is a "prostatic" one, with a large opening near the extremity on the concave side. A piece of ordinary india-rubber tubing is pushed down the catheter, and is made to emerge at the aperture near the end. This passage outwards is facilitated by the extreme end of the catheter being plugged obliquely, so that a sloping surface is presented for the tube to glide over. Sufficient tubing should be passed to allow about fifteen inches to project from the catheter, and then the latter and the tube may be

withdrawn together till the tube can be grasped beyond the catheter and the removal of the latter completed. In order to fix the tube in the urethra, a silver conical tube with rings is passed a certain distance down inside the elastic tubing and thus straightens the end of the penis. A longish stilette is also passed inside the conical tube when urine is not flowing, and additional security against the instrument slipping out afforded. Since he began to use the india-rubber tubing, he has found that a simpler plan is to push a shorter piece down the catheter by a sort of ramrod. Mr. Hutchinson has lately been using india-rubber catheters, which are not vulcanised, but perfectly smooth on the surface and very pliable. He has also found that in "*almost all cases of prostatic retention a flexible india-rubber catheter, without any stilette, can be passed into the bladder.*" It should be well oiled, and pushed in inch by inch. "I have not the least hesitation in asserting that the time-honoured silver catheter ought at once to be superseded by the india-rubber one, and that no one ought ever to think of trying metal or even gum-elastic unless he has failed with one of those I now recommend." Where the india-rubber catheter fails, the conducting silver catheter will be found very useful; but it should not be left in, only the india-rubber. ('Lancet,' June 7, 1873.)

*Stricture of the urethra with retention.*—Mr. Callender says he has never had to puncture the bladder for retention in the male, nor has he ever operated on a stricture by cutting into the perineum. In all severe cases of retention, no attempt should be made to pass a catheter till the patient has had a warm bath, a full dose of opium, and a purge. If no relief is obtained (which is very exceptional), at any rate, the attempt at catheterisation is made under more favorable circumstances than before. "If the patient passes water in or after the bath—and I never knew one fail to do so, even although the bladder may not be thoroughly emptied—it will give him a couple of days in bed, with opiates if needed, before using an instrument." When he has passed a catheter he has it tied in for about two days. The same day, or the day after, No. 6 or 8 can be passed. In some cases he has to dilate first with a catgut bougie, but this is but seldom required. A table of thirteen cases under treatment in this way lately is given. ('St. Barth. Hos. Rep.,' ix, 40.)

*Retention of urine relieved by pneumatic aspiration.*—Mr. Henry Taylor records the case of a man, æt. 74, in which he tapped the bladder above the pubes with the aspirator for retention. The aspirator was used seven times in all without any ill effects. ('Lancet,' Feb. 14, 1784.)

Mr. William Brown records a case in which he used the pneumatic aspirator daily for some days to relieve retention from enlarged prostate. The result was quite favorable. ('Brit. Med. Journ.,' May 23, 1874.)

Dr. Joseph Bell records a case of urgent retention (in a man of 65) in which he punctured the bladder with the aspirator. He speaks very highly of the efficiency of the plan and the ease of carrying it out. ('Ed. Med. Journ.,' 1874.)

Mr. Harrison records cases in which he has used the aspirator

(puncturing above the pubes) to relieve retention of urine. He speaks well of the plan. ('Lancet,' June 6, 1874.)

*Retention of urine from impassable stricture relieved by ice in the rectum. Stricture treated by caustic potash.*—The patient was 46 years of age, under the care of Mr. Teevan. No catheter could be passed. Ice was inserted into the rectum, and in twenty minutes drops of urine passed. After a patient trial for two months of various methods of treatment, a wax bougie, slightly curved and armed with a small piece of caustic potash, was passed down to the stricture. No pain or bleeding followed. Five days later the application was repeated. Four days later a small olivary bougie was passed into the bladder, followed by larger ones. ('Lancet,' Feb. 7, 1874.)

*The treatment of stricture of the urethra.*—Mr. Savory strongly urges the more systematic employment of rest in bed in the treatment of stricture, especially previous to the attempt to pass an instrument. Then a small catheter (silver by preference) having been introduced, it should be tied in for twenty-four or forty-eight hours, and another (larger) one inserted for a similar period. If the instrument has to be removed too early, a smaller one should be inserted next time, and begin again. In most cases No. 6 or 8 can be inserted in a few days. If necessary, opium may be given to keep the patient quiet. If shivering occurs, the catheter should be at once removed for a time. ('St. Barth. Hos. Rep.,' ix, 122.)

He discusses current views on the treatment of stricture. He thinks absolute rest more efficacious than the use of instruments. Without suggesting that the latter are never to be employed in the treatment of stricture, he affirms that they have been and still are grossly abused, that an untold amount of mischief is perpetrated by their abuse; that the routine employment of instruments in the treatment of stricture is in the highest degree unscientific and improper; that, in a word, in the treatment of stricture, instruments of any kind should never be employed in any way except as a last resource. ('Brit. Med. Journ.,' Dec. 20, 1873.)

In a clinical lecture on this subject, Mr. Annandale speaks favorably of the good effects of administering five or ten grains of quinine two or three hours before using an instrument in connection with the urethra, in order to prevent rigors. Gradual dilatation he considers the best method of treating uncomplicated strictures. In stricture with constantly recurring spasm or contraction, he recommends internal division with Gouley's instrument. In complicated cases external division is suitable. ('Med. Times and Gaz.,' Dec. 12, 1874.)

A case of stricture of the urethra with fistulæ, in which Mr. Heath employed catheterism and continuous dilatation, and in which acute synovitis of a joint occurred, is narrated in the 'Lancet,' May 2, 1874. The joint was aspirated successfully.

Cases of stricture treated by Mr. Heath by forcible dilatation are recorded in the 'Lancet' for May 16, &c.

Dr. Vanderveer records twenty cases variously treated. ('Am. Journ. Med. Sci.,' July, 1874.)

Mr. Teevan gives the results of cases of stricture which have come under his notice when tested by time. ('Clin. Soc. Trans.,' vi, 1873.)

*The bougie conductrice in the treatment of narrow strictures of the urethra.*—Mr. Rushton Parker advocates the employment of an instrument which he figures for the internal division of stricture. It is adapted for very narrow strictures. It is the one used by M. Maisonneuve. ('Lancet,' Jan. 31, 1874.)

*Grooved catheter with conducting bougie.*—Mr. Teevan figures and describes a small silver catheter which can be passed over a small whalebone bougie in cases of very tight stricture of the urethra or where the latter is small and tortuous. The bougie is bulbous. The catheter is open at the end and is passed over the bougie for a certain distance and then the latter lies in a groove in the catheter. The groove is made by cutting a piece out of the catheter. ('Lancet,' July 5, 1873.)

*New bulbed stricture sound for exploring the urethra from behind forwards.*—Mr. B. W. Richardson describes and figures a bulbed sound for detecting position, &c., of stricture. ('Dub. Journ. Med. Sci.,' Nov. 1873.)

*The employment of bulbous bougies.*—Dr. Miller makes some remarks on this subject. ('Edin. Med. Journ.,' Dec. 1873.)

*Colles's operation for the relief of stricture at the orifice of the urethra.*—The patient was a man æt. 32. The case is recorded and figured by Mr. Richardson. ('Dub. Journ. Med. Sci.,' Jan. 1873.)

*Urethrotome for incising narrow strictures.*—Mr. Berkeley Hill describes and figures a modified urethrotome for incising narrow strictures. A guide bougie is passed and then a catheter or the "incisor" is passed on this as required. ('Brit. Med. Journ.,' Nov. 29, 1873, 'Lancet,' June 13, 1874.)

*Catheter urethrotome with conducting bougie.*—Mr. Teevan describes and figures an improved urethrotome. It consists of a very slender bougie, over which a catheter is passed and evidence of entrance into the bladder obtained. The knife is then slid along the catheter. ('Lancet,' May 23, 1874.)

*Modification of Holt's dilator.*—Mr. Richard Davy describes and figures a modification of Holt's dilator for stricture of the urethra.

*Two cases of death after Holt's operation.*—Mr. Tibbits records the cases of two healthy men suffering from stricture who died in consequence of and shortly after Holt's plan of splitting the stricture had been carried out. The mucous membrane in each case was intact. Rigors occurred and coma finally supervened. ('Med. Times and Gazette,' Aug. 2, 1873.)

*Stricture of the urethra treated by opening the urethra from the rectum.*—Mr. L. S. Little records a case of stricture treated on Mr. F. Jordan's plan. The urethra was opened in front of the prostate in the middle line to the extent of half an inch. A bougie was then passed from the wound towards the meatus, but only reached the front of the scrotum. A catheter was passed into the bladder. At the end of a week a catheter (small) was passed through the urethra by the meatus. Finally a number 12 was passed. ('Med. Times and Gazette,' Sept. 20, 1873.)

Mr. F. Furneaux Jordan thus describes his operation. A well-curved

bistoury, very sharp and double-edged near the point, is carried by the index finger into the rectum; it is then thrust forwards at right angles to the axis of the rectum, exactly in the middle line and about an inch and a quarter from the anus, and in front of the apex of the prostate, which the finger can readily feel. The bistoury is then drawn forwards to an extent sufficient to allow the tip of the finger to be introduced into the urethra. The finger can now be carried backwards to the bladder or forwards to the stricture. The finger being directed towards the stricture, a soft French bougie is directed forwards along its concavity, through the stricture and out at the meatus. The rectal end of the instrument is then carried into the bladder and the stricture is treated on the principle of continuous dilatation. In twenty-four hours, a large instrument can be introduced from before backwards, and in another twenty-four hours one of the largest size. ('Surgical Inquiries,' p. 24.)

*Abscess of the prostate simulating stricture of the urethra; peritonitis.*—The patient was 44 years of age. His symptoms began with incontinence three years previously. He had noticed blood in his urine for three weeks. He was in a very low state on admission. He gradually sank. Extensive peritonitis was found, chiefly marked in the pelvis. Just at the apex of the prostate was a small sac in the roof of the urethra, burrowing forwards on the right side, for about half an inch, containing purulent fluid. No communication existed with the urethra. The bladder was greatly hypertrophied, except at the apex, to which omentum was adherent, and where the walls were as thin as paper, and in a sloughy condition. No perforation was found. ('Med. Times and Gaz.,' Oct. 25, 1873.)

*Vascular growths of the urethra.*—Dr. Edis has found a saturated solution of chromic acid answer very well for the destruction of vascular growths of the female urethra. ('Brit. Med. Journ.,' April 4, 1874.)

*Mechanical obstruction to the flow of urine into the bladder for eleven days.*—The patient was a man, æt 51. One day on getting up he passed urine freely, but, while breakfasting, was taken with severe pain in the left lumbar region. He passed no water subsequently, and none passed into the bladder for eleven days except a little on the fourth day. He became exceedingly ill, but on the eleventh day passed a quantity of urine. About eight years before he had suffered from gravel. Dr. Cunynghame supposes that the right kidney was of little use, or none, and that the left ureter had become plugged. (Mr. Hutchinson recorded a very similar case some time ago.) The more interesting points appear to be (1) the length of time passed without urination. (2) The total absence of symptoms of uræmia. (3) The advantage, or apparent advantage, of the mechanical action of gentle friction. ('Edin. Med. Journ.,' Oct. 1874.)

*Fatal retention of urine produced by a fibroid growth in a young child.*—The patient, aged nineteen months, was under the care of Mr. Henry Smith. A catheter could not be passed. There was some swelling to be felt between the rectum and the bladder. At the post-mortem a fibrous growth was found apparently springing from the periosteum of the pubes and ischium. ('Lancet,' Dec. 27, 1873.)

*New method for the detection and removal of vesical calculi.*—Mr. W. D. Napier advocates the use of a sound coated with black pigment produced by its momentary immersion in a weak solution of nitrate of silver. Contact with a calculus produces scratches on the surface. The instrument is called "the Calculus Detector." In the removal of calculus fragments, he uses an instrument consisting of a soft india-rubber tube, terminating at one extremity in a funnel-shaped orifice greatly resembling in form the ordinary convolvulus flower, and capable of containing a calculus or portions of calculus of considerable dimensions. It is introduced closed up by a cocoa-butter point, through a silver canula. When pushed on into the bladder it expands, the cocoa-butter point dissolves, and any fragment, &c., gravitates into its cavity and it is then withdrawn, closing as it is removed and grasping its contents firmly. It may also be used as a self-retaining catheter. ('Med. Times and Gazette,' June 14, 1873.)

*Foreign body in the bladder.*—Mr. Lund records the case of a man, æt. 33, who passed a No. 3 flexible bougie into his bladder, the ivory knob remaining in his hand. Mr. Lund in a little while split the stricture with Holt's dilator, and then after some trouble seized the bougie with a lithotrite and drew it out. For three days the patient did well, but then severe urethral fever set in and went on to the formation of pyæmic abscesses. After a serious illness, prolonged through five months, the patient recovered with the stricture cured. Mr. Lund remarks at length on the nature of the illness. ('Liverpool and Manchester Med. and Surg. Rep., Oct. 1873, 193.)

Mr. Cadge records a case in which he removed portions of a stearine candle from the male bladder some seven months after being passed along the urethra. After many trials he succeeded in catching the wick, &c., with a lithotrite and removing it. ('Brit. Med. Journ.,' Nov. 15, 1873.)

Mr. Stokes records a case of removal of a gum-elastic catheter from the bladder by median lithotomy. Recovery. ('Dub. Journ. Med. Sci.,' Oct. 1873.)

A case of removal of a flexible catheter from the bladder by lithotomy was under the care of Mr. Folker, in the North Staffordshire Infirmary. The catheter, No. 3, had slipped into the bladder a year previously. The urine became offensive, &c. A large mass was found in the bladder. The ivory part of the catheter had slipped off. There was much phosphatic matter. The patient, a man, æt. 23, recovered well. ('Lancet,' Jan. 18, 1873.)

*Impacted vesical calculus; lithotomy; reopening of wound; recovery.*—Surgeon-Major J. H. Porter relates the case of a man, æt. 24, on whom he operated for calculus. It was found to be impacted, and no effort would dislodge it. A large portion was removed. Thirteen days later, the wound was reopened and more removed, and in another forty-eight hours the remainder was removed. He suffered little from these repeated operations. ('Brit. Med. Journ.,' Oct. 31, 1874.)

*Median lithotomy.*—Mr. Cadge considers that median lithotomy is not applicable to very young subjects; it is objectionable in all cases in which the stone is of considerable size; it has its proper sphere,

and possesses decided advantages in cases in which the stone is of moderate dimensions. ('Brit. Med. Journ.,' Aug. 30, 1873.)

*Calculus in the female.*—Mr. Heath in a clinical lecture ('Med. Times and Gazette,' April 11, 1874) details cases in which calculi were removed by dilatation of the urethra or by vaginal lithotomy.

*Lithotomy.*—Mr. Davidson, of Madagascar, recommends the use of Buchanan's staff, with a gentle curve and a groove on the inner aspect. He makes a semilunar incision through the skin, &c. The membranous part of the urethra having been opened, a guide is introduced along the groove in the staff into the bladder. The guide, consisting of two parallel and connected bars or blades, capable of being separated by means of a screw, forms, when approximated, an instrument about five inches long, somewhat like a female catheter in size, straight, slightly flattened from above downwards, and grooved on the left side so as to permit the button point of the knife to slide along without escaping from it. When the guide has been fairly introduced into the bladder, the staff is withdrawn, and the blades are separated by the screw to such an extent as to render the tissues tense. The knife used has a button-shaped extremity to fit the groove in the guide. After the parts are incised the blades are separated, and, if necessary, a further incision made. The forceps are slipped along between the blades of the instrument. ('Edin. Med. Journ.,' June, 1873, 1063.)

*Cases of sterility after lithotomy.*—Mr. W. F. Teevan reports four cases of sterility after lithotomy. ('Clin. Soc. Trans.,' vii, 179.)

*Calculus impacted in a vesical sac.*—Sir Henry Thompson records the case of a lady, æt. 52, who was the subject of a calculus impacted in a vesical pouch. After dilatation of the urethra only about one third of the calculus was found protruding into the bladder, the other two thirds being contained in a sac and outside the cavity of the bladder. It was turned out by the tip of the finger into the bladder, and then extracted with forceps. An outline showing the size and shape of the stone is given. ('Lancet,' Aug. 1, 1874.)

*Perineal lithotrity.*—An account of Prof. Dolbeau's operation is given in the 'Lancet,' Oct. 17, 1874, by Mr. W. Ewart.

*Construction of lithotrites.*—Mr. Teevan writes on this subject. ('Lancet,' Oct. 31, 1874.)

*Calculus vesicæ.*—In crushing for stone, Mr. Teevan thinks the secret of success lies in making each crushing as short as possible. At the first and second sittings, the male blade ought only to be screwed home once; later, it may be repeated twice or thrice. He does not give chloroform. In lithotomy, he advocates the adoption of the lateral operation and making a free incision. He has cut seventeen patients (twelve being children) with only one death, an adult, a month after the operation; no children. He extracts the calculus with his forefinger. ('Brit. Med. Journ.,' Jan. 18, 1873, 60.)

*The local treatment of cystitis.*—Dr. Braxton Hicks advocates injections in the treatment of cystitis. He uses an open-ended gum-elastic catheter, and is careful to enter the bladder as short a distance as possible. He withdraws the catheter without the neck as the bladder empties. Then he injects a slightly acidulated solution. When

this has run out, he injects a grain of morphia dissolved in an ounce of water. This may be done twice daily. The morphia may be increased to two grains. As the acute symptoms subside, astringent injections may be tried. ('Brit. Med. Journ.,' July 11, 1874.)

Mr. Forster treated a girl, æt. 4 years, suffering from cystitis with extreme pain and incontinence of urine, by injecting into the bladder an ounce of water containing five minims of laudanum. This was continued daily for twelve days, at the end of which time she seemed quite well. ('Clin. Soc. Trans.,' vi, 18.)

*The frequency of renal and vesical calculus in Norfolk.*—Mr. Cadge in his address on Surgery ('Brit. Med. Ass.') deals with the question of the cause of the frequency of stone in the kidney and in the bladder in Norfolk. He has collected statistics from all parts and enters into the subject in detail. In Norfolk, stone is comparatively rare in children. At the Norwich Hospital, out of 90 patients, only 18 were under ten years of age. At Wolverhampton, out of 50 patients, 37 were children under ten years of age. In Birmingham, of 127 patients, 69 were under ten. At the Aberdeen Infirmary, of 47 patients, only 3 were under ten. After entering into the various suggestions which have been made to account for the prevalence of stone in one place more than another, Mr. Cadge says that there is "one article of food—namely, milk—the want of which, in my opinion, does influence the development of lithuria very largely." Stone in the bladder is very rare in the children of well-to-do parents. In one case which came under his notice he found that the child never would take milk at all. He thinks the prevalence of stone will be found in strict accordance with the difficulty of procuring milk. Hereditary transmission is a powerful cause. ('Brit. Med. Jour.,' Aug. 15, 1874.)

*Urethral calculus incarcerated between two strictures; internal and external urethrotomy; recovery.*—The patient was a man, æt. 33, under the care of Mr. Teevan. Internal urethrotomy was performed, under the impression the case was one of stricture only. A calculus was discovered between two strictures and was extracted through an external incision. The man recovered well, and was finally able to pass a full-sized catheter. ('Lancet,' Aug. 15, 1874.)

*Xanthine calculi.*—Dr. Jaillard describes ('Gaz. Hebd.,' April 18, 1873) a case in which he removed a xanthine calculus from the bladder of a boy æt. 13. It was of a brick-red colour; its length was nearly two inches, and it weighed about 350 grains.

*Ectopia vesicæ.*—Three cases treated successfully by Mr. Wood after the manner which he has detailed in the 'Med. Chir. Trans.' vol. liii (see previous Retrospect) are narrated in the 'Lancet,' July 27, 1873.

*Treatment of chronic disease of the bladder by injection of warm healthy urine.*—Clemens, in the 'Deutsche Zeitschrift' for 1873, No. 7, states that in cases of chronic vesical catarrh, and of irritation of the bladder from abnormal urine, gravel, calculi, &c., he has injected into the organ the fresh urine of healthy young subjects from 10 to 14 years of age, and always with excellent results. The bladder is first emptied by the catheter and washed out with warm distilled water, and then the

healthy urine is injected by means of a warmed syringe. The injections are made twice, and in bad cases three times daily; and the patient retains the urine as long as possible. In one case recovery took place in three weeks, after about thirty injections. Clemens attributes the result to the urine being of blood-warmth, and to the healthy irritation which it produces in the diseased wall of the bladder.

*Extroversion of a complete bladder.*—In ordinary cases of ectopia vesicæ the anterior wall of the bladder is deficient. Lichtheim, however, records in the 'Archiv für Klinische Chirurgie,' xv, the case of a robust boy, æt. 8, whose parents, and brothers, and sisters were healthy and well formed, who on superficial inspection appeared to be the subject of ectopia of the bladder, with a high degree of epispadias; but there was no incontinence of urine, which was voided in a stream. A closer examination showed that the ends of the horizontal rami of the os pubis were only united by ligamentous bands: in a depression of the abdominal wall above, the bladder lay; it was covered externally with mucous membrane, was closed, and could be pushed back. On the dorsal surface of the penis was a strip of mucous membrane, $\frac{4}{5}$ths of an inch broad and $2\frac{3}{4}$ inches long, separated by a bridge of normal skin from the bladder. The mucous membrane covering the bladder had several layers of flattened epithelium resting on a soft basis of connective tissue with shallow papillæ; the strip on the penis had a more scanty epithelial layer resting on a firmer connective tissue. The urethra, which was very narrow, ran immediately behind the urinary strip on the penis and behind the ligamentous masses forming the symphysis pubis, and terminated in a narrow slit-shaped opening at the end of the glans of a very short penis. The umbilicus was absent; the testes lay in two sacs dependent from the anterior ends of the pubic bones; the prepuce was cleft at the upper part. The boy could retain his urine perfectly, and voided from six to seven ounces at a time. The conditions described had existed from birth.

In an analogous case described by Vrolik, the urine was voided shortly after birth through two small openings in the anterior abdominal wall, which afterwards cicatrised (oval depressions were also found in the present case). The projecting tumour consisted of a diverticulum of the bladder. In another case, described by Stokes, there was a high degree of epispadias.

*Rupture of the urinary bladder.*—Sigallas describes the case of a man, æt. 28, suffering for the second time from gonorrhœa (for which he was not treated), who was suddenly seized with retention of urine. He had no stricture. The retention lasted three days, during which he did not apply for medical advice, when, on his making a violent attempt to urinate, he suddenly felt something tear in his belly. At first this gave relief; but soon severe pain set in and obliged him to go to hospital. A catheter was introduced without difficulty, but removed very little urine. The percussion-sound over the abdomen was tympanic. He died in four days of peritonitis. The cause of retention was found to be a large abscess of the prostate. The mucous membrane of the bladder was easily torn off; the muscular coat was somewhat hypertrophied, and in the anterior wall was an oval hole with some-

what ragged and blackish edges. The wall of the bladder for about two inches around was thin and of a bluish colour; it was also gangrenous at several other points. In Douglas's pouch there were found several ounces of a tolerably clear fluid having but little resemblance to urine. The author believes that most of the urine originally effused into the peritoneum was absorbed. ('Marseille Médical,' 1874, x.)

*The vesical syphon in the treatment of urinary fistula.*—H. Gripat, in a thesis published in 1873, points out the good effects of the use of the vesical syphon, that is to say, a catheter retained in the bladder with a long tube attached to it, especially in cases of perineo-scrotal fistula arising from stricture of the urethra. The author seeks to show—1. That a small flexible catheter, of good construction, may remain in the urethra without inconvenience. 2. That a catheter of this kind may be sufficient to commence dilatation, although it is not capable of completing it, *i. e.* of effecting mechanical dilatation. 3. That even when the bladder is inert, the urine may be removed without allowing alkaline fermentation to go on and destroy the catheter, and without allowing a drop of urine to pass between the catheter and the walls of the urethra, and thus to escape through the fistula.

The vesical syphon was invented by Panas. A gum-elastic catheter, with a rounded end and of small size, even relatively to the stricture into which it ought to enter easily, is introduced into the bladder for as short a distance as possible. To this catheter is attached a piece of caoutchouc tubing, the lower end of which is immersed in a vessel placed under the patient's bed, and half filled with water or with urine. If the bladder has preserved its contractile power, the siphon is naturally charged by propulsion; and when this condition is once obtained, no further effort is required on the part of the patient, as the aspiration of a column of water a yard high is sufficient to keep the bladder completely empty. When the bladder is in a state of inertia, the siphon must be charged in some way; the best plan is to exercise pressure on it from above downwards, so as to drive out the air, and allow the urine to flow into the upper part.

This simple and ingenious apparatus "prolongs the urethra under the patient's bed." It prevents stagnation in the bladder and alkalinity of the urine; there is no discharge through the fistula, and thus subsidence of the engorgement and spontaneous closure are permitted. ('Révue des Sciences Médicales,' July 15, 1874.)

*The febrile accidents following operations on the urinary and genital organs.*—In a paper in the 'Wiener Medizinische Presse,' 1873, Dr. Englisch offers an explanation of the febrile symptoms which follow even very trivial operations on the urinary and genital organs, and occasionally lead to death. From a number of experiments, he has been led to the conclusion that in most cases the symptoms depend on acute nephritis, the result of direct transference of irritation from the urinary passage along the mucous membrane. The transference is sometimes slow, sometimes very rapid, and occurs more readily when the kidneys have previously been healthy. The first indications of fever are connected with an increase of cells in the urine, coming from the upper

part of the urinary canal and from the pelves of the kidneys. In a later stage, cells of the urinary tubules and blood-corpuscles appear; and in very severe cases, tube-casts. Albumen is usually present very early. ('Centralblatt für die Medicin. Wissenschaft.,' August 15, 1874.)

*Plastic operation for extroversion of the bladder and epispadias; death in thirteen hours.*—A year previously the patient, a lad of sixteen, had borne a preliminary operation by Dr. Ashhurst very well. This time too much was attempted at once, the operation was prolonged, and the patient sank thirteen hours subsequently. ('Am. Journ. Med. Sci.,' April, 1874.)

*Amputation of penis close to pubes.*—Mr. Tyrrel recommends transfixing the crura with an acupressure needle and tying a tape behind it. He leaves the needle in for some time to allow of pressure being easily used in case of hæmorrhage. ('Dub. Journ. Med. Sci.,' March, 1874.)

*Amputation of the penis by galvanic cautery.*—Mr. Bryant relates various cases. ('Lancet,' March 28, 1874.)

*Tumours of the labia, &c., removed by galvanic cautery.*—Mr. Bryant records cases. ('Lancet,' March 28, 1874.)

*Epithelioma of prepuce and glans penis; congenital phymosis; amputation.*—Mr. J. Cooper Forster. The patient was 51 years of age, and had noticed some swelling for ten years. ('Guy's Hosp. Rep.,' xix, p. 8.)

*Successful removal of the testes, scrotum, penis and supra-pubic skin, for epithelial cancer.*—Mr. Thomas Annandale records the case ('Lancet,' Dec. 12, 1874).

*Circumcision in the adult.*—Mr. Howse having repeatedly met with troublesome œdema of the mucous membrane left near the frænum in the ordinary operation, has adopted the plan of cutting out a wedge-shaped piece of mucous membrane *at the frænum* with a pair of scissors, and then snipping the frænum cleanly away from the glans, thus removing it and the wedge-shaped bit of mucous membrane in one piece together. Retraction on the dorsum should be avoided. ('Guy's Hosp. Rep.,' xviii, 239.)

Mr. Furneaux Jordan advocates the following operation for phymosis in adults. It has the merit of giving complete relief, without hindering work and movement. The prepuce, first on one side and then on the other, is divided, skin and lining, by probe-pointed scissors for a quarter of an inch. The prepuce is then partially retracted, exposing a quadrilateral space of mucous membrane, which is divided by a second snip on each side. The prepuce may then be fully retracted, and the incisions will assume a linear shape at right angles to the direction in which they were cut. The incision may be more or less free according to the degree of the phymosis. All that is required in dressing is that the prepuce be kept well retracted by a strip of oiled or wet lint. ('Surgical Inquiries,' p. 22.)

*Treatment of phymosis by galvanic cautery.*—A. Amussat ('Gaz. des Hôpitaux,' Nos. 6 & 8, 1874) has used the galvanic cautery in six cases of phymosis. During the operation the patient usually sits in a reclining chair; children are operated on in bed, under chloroform.

A piece of box-wood, of convenient size, is first pushed between the prepuce and the upper surface of the glans as far as the corona glandis; the prepuce is then perforated by an exploring trocar from within outwards above the corona; and a platinum wire is passed through the canula, which is then removed. The penis being held by an assistant, the two ends of the platinum wire are connected with the galvanic apparatus, and the prepuce is cut through (the wire being at a red heat) from behind forwards. There is no hæmorrhage; and healing is complete in three to five weeks.

*Treatment of scrotal and perineal hypospadias.*—M. S. Duplay in a paper read before the Surgical Society of Paris in January, 1874, and published in the 'Archives Générales de Médecine' for May and June, describes three cases of hypospadias on which he had operated. They were all cases of complete perineal hypospadias. The penis was closely attached against the scrotum, cleft in the middle line. The glans had at its summit a notch representing the urinary meatus; and its base was united by a bridle of skin to the abnormal opening of the urethra, which was situated at the posterior part of the scrotum, nearly in the perinæum. To remedy this condition, generally regarded as incurable, M. Duplay proposes an operation from which good results may be expected, but which requires time and patience. There are two indications to be fulfilled: (1) To set free the penis from its attachments, so that it can be raised towards the abdomen; (2) to construct a new canal from the abnormal opening of the urethra to the extremity of the glans. To fulfil the first indication, M. Duplay divides transversely the band which unites the glans to the scrotum, cutting through layer after layer as far as the envelope of the corpora cavernosa. The result is a lozenge-shaped wound, which is united by a few points of suture. This proceeding has been already practised and described by M. Bouisson, of Montpellier. In the second part of the treatment, it is especially necessary—and this, M. Duplay says, is a point to which surgeons have not attended—to operate by successive stages, and first to form the new canal on the upper aspect of the penis, allowing the abnormal opening of the urethra to remain, so as to keep the new canal free from contact with urine, an almost fatal cause of destruction of union and of sloughing; then, when the canal is completely joined, to connect the two portions of the urethra by closing the scrotal fistula.

*First stage; restoration of the meatus.*—The two lips of the notch representing the meatus are pared at the lower part, and, the end of a probe being introduced, the pared edges are united over it by one or two points of twisted suture.

*Second stage; formation of a new canal.*—Two longitudinal incisions are made on the inferior aspect of the penis, and are met at their extremities by two small transverse incisions. Thus two quadrilateral flaps are formed, reaching from the glans to about one fifth of an inch from the abnormal opening of the urethra. They are dissected up from without inwards, and raised towards the middle line so as to completely cover a sound of convenient size previously introduced through the newly formed meatus. Their cutaneous surface thus represents the

internal surface of the urethra. The skin at the sides is then dissected up, and is drawn towards the middle line, so as to cover in the surface denuded by the removal of the two flaps. All that now remains to be done is to unite the two layers of skin in the middle line, and the upper margin of each flap to the lower margin of the glans, after paring. Union may fail at one or more points, and defects must be afterwards repaired.

*Third stage; connection of the two portions of the urethra.*—The scrotal fistula must be pared and united to the newly formed canal. In children, however, who do not know how to control the desire to pass urine, and who cannot understand the object of necessity of concurrence on their part with the endeavours of the surgeon, the contact of the urine is liable to prevent union. M. Duplay has obtained it in two cases. He believes that, while it may be desirable to practise the first two series of operations at an early age, when they are more easily performed, and the restored penis is better capable of development, it is better to defer any attempt to connect the two portions of the urethra until the surgeon can reckon on the intelligent concurrence of the patient.

*Hypospadias with cleft scrotum.*—Dr. Graham records a case in which a male passed as a female till sixteen years old, and another case is recorded by Dr. Handyside, in which a male passed for a female until thirty-three years of age. ('Edin. Med. Journ.,' Jan. 1873, p. 612.)

*Hæmatocele.*—Mr. Annandale records a case in which a hæmatocele of the right tunica vaginalis was found, together with a secondary cyst of larger size. The walls of the tunica vaginalis contained calcareous plates. Representations of the tumours are given. ('Edin. Med. Journ.,' Feb. 1873, p. 714.)

*Gleet, treatment of, by insufflation.*—Mr. John St. S. Wilders recommends the insufflation of astringent remedies by means of an instrument he has devised. It can be made of any length, and the powder can be forced out to act on any parts of the urethra required. ('Lancet,' June 7, 1873.)

*Gonorrhœa; chordee; gangrene of penis; death from pyæmia.*—In the 'Lancet' for May 3, 1873, is a note of a case under the care of Dr. Villneuve, of Marseilles. The patient was 23 years of age. The gonorrhœa was very intense and accompanied by chordee. Six leeches were applied to the root of the penis. An eschar formed on the most culminating portion of the penis, and on its separation uncovered the corpora cavernosa and urethra. A rigor followed five days later, and five days later still, purulent effusion in one elbow-joint. Death followed, after arterial hæmorrhage, from the ulcer on the penis. At the post-mortem, they found denudation of the corpora, phlebitis of the prostatic plexus, abscesses in the liver and one lung, and in both elbows.

*Priapism lasting more than four weeks.*—Mr. Johnson Smith relates a case in which an injury was followed by extravasation of blood into the penis and priapism. ('Lancet,' June 7, 1873.)

*Priapism lasting six weeks.*—The patient was fifty-five years of age.

He was a great drunkard, and woke up one morning with the penis in a state of priapism, and very painful. Chloroform did not influence the state of the penis. The priapism rather rapidly subsided at the end of the six weeks. No cause for its coming on was discovered. ('Lancet,' Jan. 18, 1873.) See previous 'Bien. Retrospects.'

*Syphilitic urethral discharges.*—Mr. Lee, in his first Lettsomian lecture, treats of syphilitic urethral discharges. He endeavours to show that there are two diseases, each resulting in a puriform discharge from the urethra, or from the mucous membrane of some other part, which have not in former times been distinguished. The first of these, gonorrhœa, does not produce a secretion that can be inoculated on the same or on another individual; the second, which has its origin in true syphilis, yields a secretion which, if inoculated on a virgin subject, produces its natural results and communicates genuine syphilis. Of the last kind of disease, two varieties are described; one which occurs as a primary affection, the other as a secondary disease.

*Prostatic discharges.*—In his second lecture, Mr. Lee deals with prostatic discharges, and in his third, with *non-syphilitic urethral discharges.* He discusses the comparative anatomy of the vesiculæ seminales, &c. He supports the view that the vesiculæ seminales are not physiologically connected with the secretion of semen. In urethral discharges (spermatorrhœa, &c.), Mr. Lee finds the application of a solution of perchloride of iron to the prostatic portion of the urethra through a catheter of peculiar construction useful. The solution is made of the strength of from two to four drachms of the liquor ferri perchloridi to eight ounces of water. A catheter, with openings at the end, and a piston in its straight part, is charged with some of this fluid and introduced so that the orifices in the instrument may rest in the prostate gland ('St. Geo. Hosp. Rep.,' vi, pp. 1–56.)

*Enchondroma and cancer in the same testis.*—The case is recorded by Mr. Richardson. The enchondroma was below and the cancer above. A drawing is given. ('Dub. Journ. Med. Sci.,' Jan. 1873.) A mixed parotid tumour is also figured and described.

*Suppression of urine as a consequence of renal calculus.*—Mr. Jonathan Hutchinson, in a clinical lecture ('Lancet,' July 4, 1874), alludes to a case of suppression of urine in which he was led to diagnose that the patient had but one kidney, and that his only available ureter had become plugged by a calculus, and then records a case in which this really happened. The patient was an old man, who had enjoyed excellent health till he received a blow on the left loin, to which he attached some importance, but which was not much felt at the time. In the course of the night he could not pass water. From this time none passed, and the bladder remained empty. The main symptom was pain and tenderness in the affected loin. He was sick now and then. He died on the sixth day in a convulsive seizure. No trace could be found of a kidney on the right side, and a calculus was found impacted in the left ureter. A sketch of the left kidney and ureter is given. Two cases are related in which a similar diagnosis seemed plausible, and three previously recorded ('Path. Trans.'), in which a similar state of affairs existed.

*Disseminated suppuration of the kidney*—"Surgical Kidney."—Dr. Dickinson describes the conditions met with at different stages after death, and says the disorder has its origin in the regurgitation of urine charged with morbific products. This, forced backwards by the retention, general in these cases, distends or occupies the straight ducts. Thence by transudation, or similarly, it enters the neighbouring blood-vessels, and charges them with an infection resembling in its results that of pyæmia. This is distributed by the veins to the rest of the gland, sowing abscesses in their course, and ultimately causing constitutional symptoms analogous to those of pyæmia otherwise derived. The condition of the kidney may be described as one of pyæmia arising within itself. The patient generally dies within three weeks of the first symptom, sometimes within a few days. He mentions the case of an old woman with fracture of the thigh. Two days after the accident she became unable to pass water. A catheter was used, and the urine found to be natural. It then quickly became offensive and loaded with mucus, and death occurred within a week of the accident, three days after the urine changed its character. Small purulent deposits were scattered through both kidneys. The term "uriseptic" is suggested for this condition of kidney. ('Med.-Chir. Trans.,' lvi, 223.)

*Suppuration in a misplaced kidney treated by operation.*—A married woman was under care for a floating kidney. The tumour increased, and became painful, and found a fluctuating swelling on the right side of the abdomen. The woman was transferred from Dr. Andrew's care to that of Mr. Callender. A trocar and canula was first of all thrust into the swelling, and when pus was let out, an incision was made following in the track of the canula, which passed through the peritoneum. The edges of the latter were stitched to the skin, and a drainage tube inserted. When last heard of the woman was doing well. Dr. Andrews considered that the kidney had become twisted and strangulated. ('St. Barth. Hosp. Rep.,' ix, 211.)

*Litho-nephrotomy.*—A case in which Mr. Callender removed a stone from the kidney by a lumbar incision as for colotomy is narrated in the 'St. Barth. Hosp. Rep.,' ix, 220. The patient, a woman, died three days later.

*Cystic tumour attached to kidney simulating ovarian disease; extirpation of kidney; recovery.*—Dr. Campbell records the case. The patient was a woman, æt. 49, a widow. She had had five children; none for thirteen years. She had noticed a tumour in left iliac fossa for eighteen months. It was considered to be an ovarian tumour and ovariotomy was attempted. The cyst had a multilocular appearance and was of a whitish colour. About three fourths of it was covered by peritoneum. No fluid escaped on puncturing it. The cyst was laid open and dragged forwards. It was found to be attached posteriorly. The ovaries were quite healthy. The cyst was found to be connected, or rather thoroughly incorporated with the lower end of the left kidney. Both were removed. The ureter and renal vessels were tied with strong hempen thread; other vessels with catgut. The abdominal cavity was well sponged out with weak solution of carbolic acid, and the wound covered with gauze. The tumour was found to be caused by cystic degeneration of

the lower fourth of the kidney, the other parts being seemingly healthy. The patient recovered well, though slowly. The author remarks that the case is not only interesting as one of recovery after removal of the kidney, but as showing how impossible it is to arrive at anything like an accurate diagnosis in some cases of abdominal tumours. There was no evidence to lead to the suspicion of there being any kidney mischief. All the symptoms pointed to ovarian disease. The tumour first appeared in the left groin and continued to extend upwards and inwards. There was no history of nephritic colic, albuminuria or other change in the quantity or state of the urine. The secretion of the urine was very little affected by the operation. Plenty of clear urine was excreted from the first, and there were no uræmic symptoms. ('Edin. Med. Journ.,' July, 1874.)

*Erysipelas of the kidney and urinary tract.*—Under this term, Dr. Goodhart details certain cases of so-called "surgical kidney" often attributed to the passage of catheters, &c. He is inclined to refer many of them to an erysipelatous condition, the contagion being often conveyed by the catheter. He concludes—1. That the suppurative nephritis is generally secondary to disease about the bladder and to decomposition of the urine. 2. That it may be produced without putrefaction of the urine, without any apparent disturbance from without, by the occurrence of retention, either in the bladder or pelvis of the kidney. 3. That the free communication between the bladder and external air has not a large share in most cases in producing suppuration of the kidneys, but this is not so at special seasons or when this condition is coupled with inflammation of the bladder, whether set up by decomposing urine or other causes. 4. That atmospheric conditions or particles at particular times, more especially those having to do with erysipelas, are likely to induce the disease. 5. That surgical operations, in proportion to the intensity of the inflammation they excite and the completeness with which they ensure that those inflammatory products shall be intensified by the admixture of air, are also fertile sources of disease. ('Guy's Hosp. Rep.,' xix, 357.)

*Extirpation of the kidney.*—A collection of eight cases in which the kidney has been extirpated will be found in the 'American Journal of the Medical Sciences' for Jan. 1873, p. 277. Of these, six died and two recovered. Another case of recovery after excision of an injured kidney, by Dr. Brandt ('Wiener Med. Woch.,' Nov., Dec. 1873), is noted in full in 'Edin. Med. Journ.,' May, 1874.

*Chylous urine.*—Notes of a case of chylous urine are given ('Edin. Med. Journal,' Sept. 1874) by Mr. Robert Smith. The patient, a woman, æt. 56, died, but there was no post-mortem.

*Rare concretions in the urinary organs.*—Dr. C. Fürstner describes in 'Virchow's Archiv,' lix, the case of a man, æt. 72, who had suffered from symptoms of calculus for two years, and who died of rigors five days after the first attempt at lithotrity. At the necropsy, the bladder was found to be small and hypertrophied, and in it were six small uric-acid concretions of the size of pigeons' eggs, without facets, "like eggs in a bird's nest;" each was embedded in a shallow diverticulum. The mucous membrane of the bladder and ureters was in a state of

hæmorrhagic inflammation. The kidneys were large and hyperæmic, and the capsules studded with hæmorrhages. The cortical substance contained numerous yellow rather soft deposits, partly round, partly in the form of streaks; they followed the course of the urinary tubes and encroached on the medullary substance; they depended on the migration of parasites. The urinary tubules were plugged with shining globules, which were unchanged by either alkalies, acids, alcohol or ether; and the tubules in this condition formed the centres of the deposits. The lithotrite was carefully disinfected before use, and the bladder afterwards washed out.

In a second case related by Dr. Fürstner, a man, æt. 62, died of tuberculosis, without presenting during life any symptoms of urinary disease. The left kidney had a dilated pelvis, from which, at the normal situation, an ureter came off; this immediately became dilated into a sac in which lay a mulberry calculus as large as a walnut. The ureter below was of normal size, and received a second ureter which came off from the upper part of the kidney; it then passed to the bladder, into which it opened immediately above the urethra. The right ureter arose from the kidney by six roots, which existed in place of the pelvis of the organ.

*Inflammation of the vesiculæ seminales.*—In the 'Journal de Méd. et de Chirurg.,' Oct. 1874, M. Verneuil relates two cases of inflammation of the vesiculæ seminales. A man, æt. 34, had gonorrhœa six years previously, which was followed by stricture, which was treated by internal urethrotomy four years before the present history. Six months afterwards he had vesical catarrh, which was soon cured by injections. When he came under notice, micturition was difficult; the abdomen was painful, there was sometimes a discharge of semen during stool, and spermatozoids were always present in the urine. On introducing a bougie, it was sometimes arrested in the membranous portion of the urethra, and sometimes passed readily. The bladder, kidneys, and prostate were healthy. On examination per rectum, tenderness was detected in the region of the vesiculæ seminales, especially on the right side; and deep pressure on the abdominal walls produced pain on both sides at the fundus of the bladder. Verneuil believes that the man did not suffer from stricture, but from spasmodic contraction of the urethra. In the second case, a man, æt. 30, had constant difficulty in micturition, and pain; he was obliged to void his urine every ten minutes. A stricture was diagnosed, and a bougie was used without effect. Verneuil found an obstruction in the membranous part of the urethra, which he regarded as spasmodic, and which was one day overcome by means of a large bougie. On examination *per rectum*, the vesiculæ seminales were found to be unusually tender, enlarged, and hard. The treatment consisted in the internal use of turpentine, morphia injections, and prolonged hip-baths, and was followed by gradual improvement.

*Concretions in the vesiculæ seminales.*—Dr. Reliquet related to the 'Académie de Médecine,' in Paris, on March 14, 1874, the case of a man, æt. 35, who had for some time suffered from painful spasms in the region of the bladder, and from severe pain during defæcation and

coitus. No calculus could be found in the bladder. After the removal of the lithotrite used in the examination, the patient had an attack of spasm, passed urine, and discharged therewith some small white masses. These were examined by M. Robin, who found them to be about 0·08 of an inch in diameter, opaline, and translucent; when treated with acetic acid they became translucent, and showed an enormous number of encapsuled spermatozoids. The left vesicula seminalis on examination *per rectum*, was found to be hard and swollen, and the contact of the finger produced severe pain and spasmodic contraction. The introduction of the lithotrite had led to the expulsion of the masses through the ejaculatory duct. After their removal the patient felt quite well.

*Treatment of urethral fistula by excision of a portion of the perinæum.*—It sometimes occurs, in cases of urethral stricture complicated with fistula, that, after dilatation of the stricture, the fistula does not heal, but becomes fixed by hard cicatricial tissue to the urethra. In such cases Voillemier ('Gaz. Hebd.,' June 12 to 19, 1874) recommends the excision of a portion of the perinæum.

He first accustoms the bladder to the constant presence of a catheter, and then operates in the following manner. The patient, being narcotised, is placed in the position for lithotomy, and the catheter and scrotum are held by an assistant. A probe is now passed into the fistulous opening, and two semi-elliptical incisions are made in the perinæum, so as to circumscribe a portion of integument from 2 to 2½ inches long and 1½ inch wide. The dissection is now carefully carried in the direction of the middle line as far as the urethra, and the flap of skin is removed. The patulous opening in the urethra presents pale granulations, which are treated with nitrate of silver. The wound is then well cleaned and filled with dry charpie, over which a T bandage is applied. The dressing is allowed to remain four or six days; after which it is renewed daily. Healing is generally complete at the end of a month, and leaves a linear cicatrix. During the whole time, an elastic catheter is retained in the bladder.

Voillemier has operated on eleven patients in this way, the result being always good. In one case, however, the cicatrix did not form in the ordinary way, but the edges of the skin did not unite, and a broad deep scar was left, at the bottom of which was the cicatrised urethra.

*Latent gonorrhœa.*—Dr. Noeggerath, of New York, writes on latent gonorrhœa in the female (essay published in German in Bonn). He believes there is a fungus peculiar to gonorrhœal pus and gleet. The following statements express the conclusions at which he has arrived. Gonorrhœa in man, as in woman, does, as a rule, last for the whole life, despite apparent cure. There is a latent gonorrhœa in man as well as in woman. Latent gonorrhœa in man, as well as in woman, may produce, in a hitherto healthy individual, either a latent gonorrhœa or the symptoms of acute gonorrhœa. Latent gonorrhœa in a woman manifests itself in the course of time by acute or chronic or recurring perimetritis or ovaritis, and as catarrh of particular portions of the genital mucous membrane. Wives of men who at any period of their lives have had gonorrhœa are, as a rule, sterile. Those who become pregnant,

either abort, or only bear one child. Exceptionally, three or four children are born. In the secretions of patients suffering from latent gonorrhœa a fungus may be produced which is closely analogous to that found in the fresh gonorrhœal secretion of men. Eight out of every ten men have had gonorrhœa. ('Edin. Med. Journ.,' January, 1873.)

Dr. A. MacDonald takes up the subject in the June number of the same journal (p. 1086). He quotes from Dr. Noeggerath :—"I have undertaken to show that the wife of every husband who, at any time of his life before marriage has contracted a gonorrhœa, with very few exceptions, is affected with latent gonorrhœa, which, sooner or later, brings its existence into view through some one of the forms of disease about to be described. The reason why this fact has not hitherto been brought into discussion in a thorough manner is founded upon several circumstances. In the first place, we physicians have hitherto believed that a gonorrhœa in a man, after it has once ceased to present any signs of its existence, such as occasional moistness or stickiness of the urethral opening, itching in the urethra, or pain on micturition, is actually cured. This is not the fact in the majority of cases, and I believe I do not go too far when I assert that of every hundred wives who get married to husbands who have previously had gonorrhœa scarcely ten remain healthy; the rest suffer from one or other of the diseases which it is the task of this paper to describe, and of the ten that remain spared we can with certainty affirm that in the one or the other of them, through some accidental cause, the hitherto hidden mischief will, sooner or later, come to an explosion." The diseases mentioned are acute perimetritis, oöphoritis, and catarrh of the genital passages. These he affirms to be practically incurable. The women are not only miserable and liable to increased risk of death, but they are, as a rule, sterile. Dr. MacDonald does not accept his statement in regard to sterility, but he thinks that there may be much truth in what he says as regards the diseases from which many married women suffer. He believes in the curability of gonorrhœa. He says that from the narratives of his own cases it is sufficiently evident that gonorrhœa in a merely subacute, if not even in an exceedingly chronic and apparently cured, that is, latent form in the husband, and one which, in the female, produces symptoms simply of a slight leucorrhœa differing in general appearance little, if at all, from ordinary leucorrhœa, may prove a complication fraught with extreme danger to the female, and, in the puerperal stage, one likely to lead to a dangerous and even fatal form of puerperal fever. He says we ought to be a very great deal more guarded in giving our permission of marriage to young men who have within a short period contracted a gonorrhœa, or who suffer from a gleety discharge. If a man marry with the slightest shade of a gleet he exposes his wife to the possible risk of great misery throughout her menstrual life, as well as to great risk of death in case she becomes pregnant.

*Recto-vesical fistula in the female treated successfully by colotomy.*—Mr. Heath details the case of a lady, æt. 41, who had constant pain in the bladder and difficulty in micturition, and suffered great annoyance from the constant passage of flatus by the urethra. The diagnosis was

that an abscess had formed a communication with the upper part of the rectum and with the bladder. Colotomy was performed. Five days afterwards a very small piece of fæcal matter was passed *per urethram* with some pain. She recovered well. At the end of twelve months the patient was well and had no inconvenience about the bladder. The artificial anus gave no inconvenience. No urine had ever flowed into the bowel. ('Clin. Soc. Trans.,' vi, 128.)

*Vesico-intestinal fistula.*—A case in a man, æt. 66, is recorded by Mr. Wills Richardson. For thirteen or fourteen years he had been liable to accumulations of fæces periodically, the results of thickening and narrowing of the descending colon. In August, 1871, a new symptom was noticed—a very tender tumour could be distinguished projecting above the brim of the true pelvis. Towards the end of September air was noticed to escape *per urethram*. The urine was examined, and evidence suggesting communication with intestine obtained (a figure is given). In October, fæces (fluid) passed with the urine. He died Nov. 25; no operation having been attempted. The post-mortem showed thickening of the lower fourth of the descending colon, which was about an inch in diameter. The sigmoid flexure seemed elongated, and formed a semi-solid, irregular-shaped tumour, about the size, and somewhat the shape, of a small beef kidney. The tumour on section, here and there, was semigelatinous, resembling fœtal brain in appearance. The remainder of the mass was more opaque and more solid, the whole resembling one of the forms of medullary cancer. The lower and anterior part of the tumour was adherent to the upper and back part of the bladder. An ulcerated circular opening, a quarter of an inch in diameter, had formed in the diseased wall of the gut, corresponding to the centre of the intestinal portion of the adhesion. This opening led to a funnelled passage of nearly an inch in length, which passed through the wall of the bladder, and terminated on its mucous surface by a hole that barely allowed a fine probe to pass (a figure is given). ('Dublin Journal of Med. Sci.,' Jan. 1873.)

*Ovarian diseases.*—An able essay (Hastings Prize Essay) by Mr. Lawson Tait, on the pathology and treatment of ovarian diseases, will be found in the 'Brit. Med. Journ.,' May 30, &c., 1874.

*Ovariotomy by enucleation; recovery.*—Dr. Samuel Logan records a case of ovarian disease in which he operated on Prof. Miner's plan. The patient was a married woman, æt. 42. The abdominal incision was long. The adhesions were carefully broken down and the mass turned out. It was found to be connected with the right broad ligament, by means of a pedicle about two inches broad, and about three quarters of an inch thick. It was quite long enough for clamping, but it was decided to "enucleate." Insinuating the index-finger through the middle of the pedicle where it joined the tumour, the operator succeeded with perfect ease in carefully peeling each portion, with its vessels, from the surface of the former, and in a very short time the whole mass was everted without the loss of half a drachm of blood, and the shreddy pedicle was dropped back into the abdomen. The parts were carefully sponged, the abdominal wall stitched with silk, Richardson's styptic colloid applied, and the abdomen supported with strips of strapping.

On the tenth day, the sutures were removed, and on the eighteenth, the patient moved about the room. At the end of four months she remained quite well. ('Am. Journ. Med. Sci.,' July, 1873.)

Dr. Murnick records the case of a patient, æt. 40, from whom he removed an ovarian tumour by enucleation. He then passed several threads of silk from the vagina through Douglas' pouch and out through the abdominal wound. There was excessive gastric irritability afterwards, and this was relieved by subcutaneous injections of quinine, four grains, with an eighth of a grain of morphia each time. ('Am. Journ. Med. Sci.,' Jan. 1874.)

*Ovariotomy.*—Mr. Spencer Wells records a fifth series of 100 cases, and makes remarks on the lessons to be learnt from the whole 500 cases. 240 of them were in hospital and 260 in private practice. The mortality has been 26·66 and 24·23 per cent. respectively. In the different series the relative mortality varied greatly. The varying mortality in hospital manifestly corresponded with varying sanitary conditions or with the presence of infecting cases in the same ward. After cleansing the hospital an almost uninterrupted period of success has followed. As regards the *influence of season*, he finds the mortality nearly equally distributed over the whole year. The influence of *age* appears to be remarkable. Thus twelve patients below the age of 20 and seven out of eight above that of 60 all recovered. Between 20 and 25 and between 40 and 45 the mortality was about the same, *i.e.*, 16 and 17 per cent. The highest, 33 per cent., was at the age of 50 to 55. The *conjugal condition* has little influence. *Adhesions* to the abdominal wall or to the omentum exercise but little influence, whereas adhesions within the pelvis or around its brim and attachments to the bladder or rectum are likely to considerably increase mortality. In 296, where adhesions were slight or absent, the mortality was 19·93 per cent. In 204, where they were extensive, the mortality was 33·33 per cent. As to *size* and *solidity* it must be remembered that a solid tumour will require a longer incision than a large one where the contents can be evacuated. The smallest mortality has been in cases where the incision was five inches long. A longer or shorter incision was attended by greater fatality. The former would indicate adhesions or a solid tumour, but the peculiar dangers of a small incision are not mentioned. *Treatment of pedicle.*—In two thirds of the cases the pedicle was secured by a clamp; of these the mortality was 19·77 per cent. In 49 cases some substitute for the clamp was used, but the pedicle was still kept outside; of these the mortality was 32·65 per cent.—a difference of 13 per cent. in favour of the complete over the imperfect method of carrying out the extra-peritoneal principle. "But even these imperfect attempts have given far better results than the old method of tying the pedicle, and allowing it to sink in the peritoneal cavity with the ligature, and keeping the lower part of the wound open by the ends of the ligature until it separates and comes away." Of 14 cases so treated 8 died and 6 recovered—a mortality of 57·14 per cent. The *intra*-peritoneal method was practised in 88 cases with 54 recoveries, or a mortality of 38·63 per cent., just double that of the *extra*-peritoneal (clamp) method. In 57 cases the tied pedicle was returned with the ligature, the ends being cut off short

and the wound closed; 29 of these recovered and 28 died—a mortality of 49·12 per cent. The écraseur was only used in one case (successful). The cautery alone in 16, with 14 recoveries; and in 14 others combined with ligature of some vessels, there were 10 recoveries and 4 deaths, making altogether a mortality of 20 per cent.—within a fraction of that of the clamp cases. In 25 cases *both* ovaries were removed—mortality nearly double that of the single ones. In four other cases the second ovary was removed at a subsequent period; two recovered and two died. The 373 patients who recovered have been kept under observation as far as possible. Some have since married, a number have borne children and the majority had excellent health. ('Med. Chir. Trans.,' lvi, 113.)

Mr. G. C. Wheelhouse remarks on the teachings of the General Infirmary at Leeds with regard to the operation of ovariotomy. ('Brit. Med. Journ.,' March 21, 1874.)

In the 'Lancet,' May 16, 1874, are recorded the cases of ovariotomy under care at the Hospital for Women, Soho, during 1873. There were twenty-three cases, with ten deaths, giving an average mortality of 43·5 per cent. From 1868 till 1873 eighty-two ovariotomies had been performed with thirty-two fatal cases, or an average mortality of 39 per cent.

Mr. Wagstaffe records a successful case. ('Med. Times and Gazette,' Jan. 3, 1874.)

Remarks by Dr. Marion Sims on the mode of treating the pedicle, drainage from the peritoneal cavity, &c., will be found in the 'Am. Journ. Med. Sci.,' Jan. 1873, p. 282, taken from the 'New York Med. Journ.'

Mr. Hulke records three cases; two successful. One of the latter was a large multilocular tumour, and one of the cysts had ruptured three days previously. The second was a compound proliferous cyst. Both patients were fifty years of age. The fatal case was in a patient twenty-one years of age. The cyst had grown rapidly. ('Med. Times and Gaz.,' Aug. 30, 1873.)

A case of recovery, the pedicle being "pocketed" after enucleation had been almost practised; another, of enucleation which ended fatally; and a third in which drainage through the cul-de-sac of Douglas was practised successfully, the pedicle, ligated in two halves, being dropped back, are noted in the 'Am. Journ. Med. Sci.,' Jan. 1874, from various sources.

Mr. O'Grady records two cases and tabulates other cases operated on in Ireland—fifty-three in all. ('Dub. Journ. Med. Sci.,' August, 1874.)

Mr. Spencer Wells records a case in a girl eight years old. The patient recovered well. ('Brit. Med. Journ.,' March 14, 1874.)

Mr. T. P. Teale records a case in which he performed ovariotomy during acute suppuration of the cyst. The patient recovered rapidly. ('Lancet,' June 28, 1873.)

He also records three cases in which he performed ovariotomy on persons apparently dying. Two patients recovered and one died. In the latter the cyst had ruptured. In one patient who recovered there was peritonitis, which had followed tapping. In the other case a cyst

was found which had suppurated and was universally adherent. All was separated except a small portion the size of the palm of the hand. The patient was so collapsed that this was left. No pedicle could be discovered. The patient recovered, but has a discharge from a sinus. The case in which death resulted suggested to Mr. Teale the question whether when a patient, *after* ovariotomy, is evidently on the point of sinking from peritonitis, it might not be justifiable to open up the wound and sponge out the cavity, &c. He asks further, "Does not the experience of ovariotomy in general, and of his cases in particular, suggest a hope that we may some day deal with the almost hopeless cases of perforating ulcer of the bowel by opening the peritoneal cavity, washing out the irritating material and stitching up the bowel at the seat of perforation?" The nature of the cyst where no pedicle was found is discussed. The patient who died did fairly for four days. On the fifth day, fresh symptoms of peritonitis showed themselves, and she died on the evening of the sixth. ('Lancet,' May 2, 1874.)

*Cyst removed by abdominal section.*—Dr. Lloyd Roberts records a case in which a cyst was removed by abdominal section, which had no connection with the uterus, ovaries, or their appendages. It was covered with peritoneum, being bound down by it posteriorly; there was no pedicle, but an abundant vascular supply was derived directly from the investing serous membrane. Catgut ligatures were applied to the divided vessels and the patient made a good recovery. The cyst was filled with a clear colourless fluid, feebly albuminous, with a sp. gr. 1004. The tumour weighed 17¾ pounds, and was regarded by Dr. Roberts as a non-fecundated ovum which had escaped into the abdominal cavity. ('Liverpool and Manchester Med. and Surg. Reports,' p. 190, 1873.)

*Cyst of the liver simulating an ovarian tumour; partial removal; death.*—The patient was under the care of Mr. Ward Cousins. The nature of the cyst was undetermined; probably it was a simple one. ('Brit. Med. Journ.,' Dec. 5, 1874.)

*Vaginal ovariotomy.*—Dr. J. T. Gilmore ('N. O. Med. and Surg. Journ,' Nov. 1873) records a case in a woman, æt. 48. She was so much out of health that it was feared an abdominal operation would be fatal. He, therefore, adopted Prof. Thomas' plan of removing the cyst through the vagina. The patient recovered well. The operation is described in detail. ('Am. Journ. Med. Sci.,' Jan. 1874.)

*Large medullary sarcoma of the left ovary.*—Th. Clemens describes in the 'Deutsche Klinik' for 1873, iii, a case in which the swelling first appeared ten years previously, three months after the patient's last labour; it grew rapidly with occasional interruptions. During the last two years the measurement from one crista ilii to the other was nearly three feet. The tumour was of firm consistence, and, as was expected, no discharge flowed when it was punctured. The patient died eight weeks afterwards. The tumour was found to be a medullary sarcoma of the left ovary; it weighed eighty pounds. The other organs were all healthy. With the exception of the severe pain which the patient suffered during life, there was no disturbance either of the bodily or of the

mental functions. ('Centralblatt für die Med. Wissenschaft.,' 17 May, 1873.)

*Fibro-cystic tumour of the uterus; removal, together with the uterus and its appendages; recovery.*—The patient was under the care of Dr. Trenholme. The nature of the case was diagnosed and the operation performed on account of failure of general health, &c. ('Lancet,' Nov. 14, 1874.)

*Gastrotomy for extra-uterine pregnancy.*—Mr. Lawson Tait records a successful case. He did not remove the placenta. He cut the cord about midway and left the placental part hanging out of the wound. The cavity was well sponged out and then the cut edge of the sac was stitched by catgut suture all round the peritoneal edge of the parietal wound and the peritoneal cavity completely closed. The upper half of the abdominal wound was closed. A tube was inserted below and the fluid accumulated drawn off from time to time. He attributed the success to leaving the placenta, closing the peritoneal cavity, and leaving that of the abnormal sac open. ('Med.-Chir. Trans.,' lvi, 219.)

*The surgical treatment of intra-peritoneal injuries.*—Mr. Smith reviews the statistics of ovariotomy in reference to the question as to whether there is less risk of peritonitis from interfering with a peritoneum which has already been inflamed or one which shows no signs of past peritonitis. Mr. Wells' statistics would show the latter to be the more favorable condition. He urges the importance which ovariotomy statistics show of thoroughly removing any foreign or acrid fluids from the peritoneal cavity. He especially quotes Dr. Peaslee's plan of draining or washing out the peritoneal cavity if there seems reason to suspect that decomposing fluids are pent up after ovariotomy. He suggests that in cases of rupture of intestine with extravasation of fæces and in cases of peritonitis after hernia operations, it might be well to open or reopen the abdomen and wash out the offending materials. In cases in which ovariotomy has been performed during an attack of acute peritonitis, the results have been surprisingly favorable. ('St. Barth. Hosp. Rep.,' ix, 147.)

*Sloughing of vagina; loss of portion of ileum in connection with a confinement; ileum communicating with bladder, rectum, and vagina by common pouch for twenty years.*—Dr. Jennings records an extraordinary case. ('Dub. Journ. Med. Sci.,' August, 1874.)

*Imperforate hymen; evacuation of one hundred ounces of menstrual fluid; recovery.*—The patient was twenty years of age. A puncture with trocar and cannula was first made and then in a few days the opening was enlarged. The patient was under the care of Dr. Lloyd Roberts. ('Brit. Med. Journ.,' Oct. 18, 1873.)

*Internal intestinal obstruction treated by operation.*—Mr. Howse records two cases. One patient was a man, æt. 56. The abdomen was resonant except over a patch about four inches by three above and parallel to the right Poupart's ligament. There was also a slight feeling of resistance to the hand different to that of other parts. At the end of seventeen days' constipation, it was determined to explore. This was done by an incision above Poupart's ligament and a portion of intestine tightly strangulated by a band was found. The band was divided. The in-

testine was so damaged that it gave way at one part and was stitched up and returned into the abdomen. The patient died soon afterwards. No other strangulation was found at the post-mortem. The band was a portion of mesentery. The other patient was a man, æt. 33. He had had a hernia. Symptoms of obstruction had existed about four days. There was a dull resisting patch above Poupart's ligament on the right side. The inguinal canal was explored. Finally, a band was found constricting intestine externally to the internal ring. The band was divided without seeing it or disturbing the bowel. The patient recovered quickly and completely. Possibly the latter case was one of *reductio en bloc*. For these cases, where there is a sac between the transversalis fascia and the peritoneum, Mr. Howse proposes the term ante-peritoneal hernia. The nature of these cases is discussed at length. The question of operative treatment in cases of intestinal obstruction is dealt with, the author being in favour of an early median abdominal incision where there are symptoms leading to the suspicion of the presence of a band. ('Guy's Hosp. Rep.,' xix, 489—505.)

*A successful case of abdominal section for intussusception.*—Mr. Jonathan Hutchinson records the case of a girl two years of age who was admitted under his care into the London Hospital. From her anus, there protruded a portion of bowel about two inches long, deeply congested and much swollen. By the side of this, the finger could be passed its full length into the rectum without reaching the point at which the intussusception began. On carefully examining the extremity of the protruded part, it was noticed that it did not present merely a rounded opening as is usual in such cases. The pouch and valve of the cæcum with the opening into the ileum could easily be identified. It was, of course, the mucous membrane which was visible and the appendix cæci was wholly concealed between the folds of the intussusception. It was evident the involution was of considerable length. The tract of bowel could be felt in the abdominal wall like a long, firm sausage passing down the left side. The mother said the child had begun to suffer from pains in the abdomen rather suddenly about a month previously. Her first attack of pain was such as to cause screaming. It was quickly followed by a motion which contained blood and by frequent vomiting. A fortnight after this, the child having been ailing the whole time, a protrusion was noticed at the anus. This was reduced by a surgeon and a cork pad fitted over it. The protrusion recurred, the child continued sick and passed blood-stained mucus. Three days before admission the prolapse increased. There had been no real obstruction of the bowels, but occasional constipation. The child was constantly straining and seemed very ill. Various attempts at reposition having been unsuccessful it was determined to open the abdomen. An incision was made in the median line below the umbilicus, admitting of the easy introduction of two or three fingers. "I now very readily drew out at the wound the intussuscepted mass, which was about six inches long. I found that the serous surfaces did not adhere, and that there was no difficulty whatever in drawing the intussuscepted part out of that into which it had passed. Just as the reduction was finished, the appendix cæci made its appearance, confirming the opinion which had been

formed as to the precise part of the bowel involved." "Having completed the reduction, I put the bowel back into the abdomen and closed the wound with harelip pins and interrupted sutures. The operation had been a very simple one and had not occupied more than two or three minutes." The patient recovered without a single bad symptom, and left the hospital in about three weeks. Nothing but fluid food was allowed during the greater part of the time. Mr. Hutchinson narrates several fatal cases in which, had an operation been performed, no difficulty would have been met with in effecting reduction, and the patients would have had another chance of life afforded them. He alludes to other cases which have been operated on and to the symptoms of intussusception. He thinks it important to distinguish between mere irreducibility and strangulation. In the latter, there is greater urgency, but, at the same time, more chance of termination by gangrene of the gut. He discusses cases recorded of recovery by surgical or natural reposition, recovery after gangrene, &c. Early age seems very markedly to accelerate a fatal result. If operative interference is to avail in infants it must be resorted to very early. In most fatal cases, replacement could easily be effected after death. Peritonitis is almost uniformly absent. "In conclusion, I may briefly record my conviction that any one who will carefully examine the evidence for and against, will come to the conclusion that operations for the relief of intussusception are not only warrantable, but that in a large number of cases they are urgently demanded. The most hopeful cases are those in which the symptoms denote incarceration rather than strangulation, and in them the surgeon may take the knife in hand with a good prospect that he will encounter no serious obstacle, and that he will not find either very tight constriction, adhesions, or gangrene. Of the other cases, there are many in which, if the patient be seen early, there is sufficient hope, notwithstanding the severity of the symptoms, to justify the operation, though the surgeon must expect in such to find occasionally that the conditions preclude its completion. Lastly, in a small minority, seen late, or in which the symptoms have from the first been extremely severe, it is probably wisest to decline an operation, and to trust the chance of gangrene." The author adds a table of recorded cases of "Intussusception of, or into, the lower bowel," and appends the following conclusions:—1. That it is by no means very uncommon for intussusception to begin at the ileo-cæcal valve and to progress to such a length that the invaginated part is within reach from the anal orifice or even extruded. 2. That it is of great importance in all cases of suspected intussusception to examine carefully by the anus. 3. That in almost all cases of intussusception in children, and probably most in adults, the diagnosis may be made certain by handling the invaginated part through the abdominal wall. 4. That the prognosis of cases of intussusception varies much; first in ratio with the age of the patient; and, secondly, with the tightness of the constriction. 5. That in a large proportion of the cases in which children under one year are the patients, death must be expected within from one to six days from the commencement. 6. That in fatal cases, death is usually caused by shock or by collapse from irritation, and not by peritonitis. 7. That in

many cases, it is easy by estimating the severity of the symptoms (vomiting, constipation, &c.) to form an opinion as to whether the intestine is strangulated or simply irreducible. 8. That in cases of strangulated intussusception, whilst there is great risk of speedy death, there is also some hope that gangrene may be produced and spontaneous cure result. 9. That in cases in which the intussuscepted part is incarcerated and not strangulated there is very little hope of the occurrence of gangrene, and it is probable that the patient will die after some weeks or months, worn out by irritation and pain. 10. That the chances of successful treatment, whether by the use of bougies or by the injection of air or water, are exceedingly small, excepting in quite recent cases, and that if the surgeon does not succeed by them promptly, it is not likely that he will succeed at all. 11. That the cases best suited for operation are those which have persisted for some considerable time and in which the intestine is only incarcerated, and that these cases are also precisely those least likely to, be relieved by any other method. 12. That in the cases just referred to, after failure by injections, bougies, &c., an operation is to be strongly recommended. 13. That the records of post-mortems justify the belief that, in a considerable portion of the cases referred to the surgeon will encounter no material difficulty in effecting reduction after opening the abdomen. 14. That the circumstances which might cause difficulty are, first, the tightness of the impaction of the parts; secondly, the existence of adhesions; and, thirdly, the presence of gangrene. 15. That in selecting cases suitable for operation, the surgeon should be guided by the severity of the symptoms in his estimate of the tightness of the strangulation and also as to the probability of gangrene having already set in. 16. That in cases in which the patient's symptoms are very severe, or the stage greatly advanced, it may be wiser to decline the operation and trust to the use of opiates. 17. That the operation is best performed by an incision in the median line below the umbilicus. 18. That in cases of intussusception in young infants (under one year of age) the prognosis is very desperate, scarcely any recovering excepting the few in whom injection treatment is immediately successful, whilst a large majority die very quickly. 19. That the fact just referred to may be held to justify, in the case of very young infants, very early resort to the operation. 20. That it is very desirable that all who in future have the opportunity for post-mortem examination of intussusception cases should give special attention to the question as to whether an operation would have been practicable, and should record their results. ('Med.-Chir. Trans.,' lvii, 31.)

*Laparotomy, or abdominal section, as a remedy for intussusception, with tables showing the results of the operation in cases of this affection and in those of other forms of acute obstruction of the bowels.*—Dr. J. Ashhurst, jun., in a paper in the 'American Journal of the Medical Sciences,' July, 1874, collects thirteen cases in which abdominal section has been undertaken for the relief of intussusception (five of the cases being successful), and fifty-seven in which the operation was performed for various causes (with eleven recoveries). He sums up as follows:—1. Past experience gives no encouragement to the operative

interference in cases of intussusception occurring in infants less than a year old. 2. When the symptoms present, and particularly the existence of intestinal hæmorrhage, render it probable that the closeness of the intussusception will lead to sloughing of the invaginated portion, no operation is advisable; for, while under these circumstances an operation would almost surely fail, there is a fair hope that separation of the invaginated mass may lead to spontaneous recovery. 3. There may be, however, exceptional cases in which, while there is no prospect of recovery through sloughing, bloodless remedies fail to give relief and the patient is in danger of succumbing through exhaustion and long continued suffering; under such circumstances, if the age and general condition of the patient do not forbid it, the question of operative interference may properly be considered. 4. When an operation is determined on, laparotomy should invariably be preferred to either enterotomy or colotomy; these, though suitable operations in cases of congenital occlusion and chronic obstruction of the bowels, are unsuited for cases of intussusception or other varieties of acute obstruction. 5. In cases of acute intestinal obstruction from other causes than intussusception, should milder measures fail to give relief in the course of three, or at most, four days, laparotomy should be unhesitatingly recommended, and may, under such circumstances, be resorted to with a reasonable hope of success.

*Intussusception*; *gastrotomy.*—The patient was a child, aged five months. The intussusception could be felt from the anus and through the abdominal wall. Other attempts failing, the abdomen was opened in the median line by Dr. John Duncan, who found the small intestine invaginated through the cæcum into the colon. He could not pull out the intussuscepted part, but by process of taxis, pushing from below, aided slightly by pulling, he succeeded. The child rallied and remained well for a day, and then died suddenly, apparently from syncope. ('Edin. Med. Journ.,' June, 1874.)

*Intussusception.*—Dr. Stephen Rogers contributed a paper on this subject to the 'Trans. Med. Soc.,' New York. He narrates an interesting case in a boy, seven years old, who recovered without sloughing of intestine on the fourth day from that on which the acute symptoms were first manifested. The treatment which proved most effectual consisted in—(1) the administration of morphia, (2) the elevation of the pelvis, (3) the repeated use of enemata of salt water, and (4) manipulation and kneading of the abdomen. ('Amer. Journ. Med. Soc.,' Jan. 1874.)

Dr. Affleck records two cases of intussusception in children. One patient recovered, the other died. ('Edin. Med. Journ.,' Sept. 1873.)

*Double intussusception in an infant.*—A male infant, æt. 6 months, suffered from symptoms of diarrhœa for three weeks. At the end of the first week a lump was supposed to be noticed in left iliac region. A fortnight later, a portion of intestine was passed per anum, and the child died some twenty hours afterwards. At the post mortem, an invaginated portion of gut was found in left iliac region. On section, five layers were discovered, and it appeared that at one part an intussusception of the lower gut into the upper had occurred. One portion was absent (from

gangrene). The upward invagination was regarded as secondary, and was "possibly explained by the traction exerted in the main intussusception, through the invaginated mass having drawn down the upper part of the outermost layer of intestine over and outside the portion of gut immediately below." The patient was under care at the Victoria Hospital. ('Lancet,' May 17, 1873.)

*Lumbar colotomy.*—Dr. Mason writes a valuable paper on this subject. He details six cases of his own, and tabulates eighty cases. Of these, where the sex is given, there were forty-four males and thirty-four females. The descending colon was opened by Amussat's method in seventy-four cases; the ascending in two cases. Callisen's method was adopted in one case. The colon was opened twice in one patient. The jejunum was opened in the left lumbar region once; the ileum in the right lumbar region once; the cæcum in the right iliac region once. Fifty-four patients recovered and twenty-three died. In thirteen of the fatal cases, death should not be attributed to the operation. The shortest period of survival was sixteen hours and the longest period six years, the patient being still alive and doing well. The peritoneum was stated to have been wounded in seven cases, of which four died (in one of these, however, the post mortem revealed no peritonitis) and three patients recovered. The operation was done for vesico-intestinal fistula, with or without stricture of the rectum, in twelve cases, of which eleven recovered from the operation, and one is recorded as fatal, though the patient evidently did not die from the operation. The shortest period of survival after the operation was three weeks, and the longest two and a half years. Where obstruction of the bowel was caused by the presence of tumours, there are three cases, of which two recovered, and the result in one is not stated. The period of survival after the operation in these cases was—one case alive and doing well fifteen months afterwards; one case was alive four and a half years afterwards, and in one case it is not stated. A perusal of these cases will show that in a large proportion of them the operation was not done till the vital powers had nearly become exhausted from long-continued suffering, and with this fact taken into consideration, the results of the operation should, we think, be regarded as encouraging. ('Am. Journ. Med. Sci.,' Oct. 1873.)

*Strangulated hernia successfully treated by pneumatic aspiration.*—Dr. Bramwell records a case. The patient was a man æt. 50. Strangulation had existed about fifteen hours. A needle was pushed into the centre of the tumour and only a little fluid and gas escaped; it was then withdrawn so as to be only in the sac, and some four or five ounces of fluid escaped. The tumour suddenly collapsed and on manipulation the hernial protrusion was found to have disappeared. ('Edin. Med. Journ.,' Dec. 1874.)

*Tractile method of reducing strangulated hernia.*—Dr. Leasme calls attention to inversion of the body as a valuable means of drawing the contents of a hernial sac within the abdomen again. In a number of cases where taxis had failed he has had the patient's body inverted while under the influence of an anæsthetic, and has then pulled on the tumour slightly and pushed the abdominal walls towards the diaphragm. By this means the omentum and intestines within the abdomen have

been made to exercise traction on the portion within the sac, and reduction occurred in each instance without any trouble. In one case he had made an incision into the sac, but had not divided the stricture. The patient was inverted, and he then found that the posterior part of the hernia slipped back first and then the anterior. The plan is not applicable to all cases, of course not to very bad cases, when strangulation has existed some days and the traction might tear the semigangrenous parts asunder. This happened in one case (not under his care). ('Am. Journ. Med. Sci.,' April, 1874.)

*Reduction of large herniæ by elastic pressure.*—Mr. Duncan has found the pressure of an elastic bandage serviceable in reducing large scrotal herniæ. A turn or two of the bandage is first made pretty firmly round the neck of the sac and then layers of bandage are placed in succession over the surface. Care should be taken that the first layer be lightly laid on, so that until the whole surface of the swelling is covered the tension of the band may be very slight; but after the first layer or two, others may be applied with a firmer hand. The method is, of course, only applicable to large herniæ. ('Edin. Med. Journ.,' Nov., 1873.)

*Strangulated hernia in infants.*—Mr. Howard Marsh tabulates forty-seven cases of inguinal hernia in which herniotomy has been performed in young children. Strangulated hernia appears more fatal in children than adults. The operation should be performed as soon as taxis, fairly tried, has failed, if symptoms of strangulation exist. Cases of umbilical hernia of a peculiar character are also given, the peculiarity consisting in the lower part of the cord being apparently dilated into a pouch containing intestine. At an early period, the cæcum and adjacent portion of the ileum are contained in the part of the umbilical cord which is next the embryo and they subsequently retire into the cavity of the abdomen. In some cases, however, this recession fails to take place. ('St. Barth. Hosp. Rep.,' x, 219.)

*Subpubic hernia.*—Dr. A. Paci describes a case of subpubic or obturator hernia in 'Lo Sperimentale' for March, 1874. The subject was a woman æt. 50, who was seized rather suddenly with symptoms of strangulation. A left inguinial hernia was present, and was reduced without much trouble, but the symptoms continued, and she died on the seventh day. At the post-mortem examination, an obturator hernia of the size of a nut was found on the right side. The gut was gangrenous and had burst, discharging its contents into the abdominal cavity.

The author has examined the records of seventy cases, and arrives at the following conclusions:

For anatomical reasons, hernia in the thyroid foramen is rare. It is more frequent in women than in men, on account of the greater breadth of the pelvis and of the obturator foramen. It is oftener observed on the right than on the left side; most of the cases have occurred in old persons, none in children. The diagnosis is generally difficult, the hernia is generally regarded as femoral, both forms presenting a slight enlargement, and eventually a palpable swelling to the inner side of the femoral vessels. Obturator hernia, however, lies behind the pectineus

muscle; femoral hernia in front of it. Another symptom is the presence of pain passing down the inner side of the thigh to the knee, and sometimes even as far as the great toe; it arises from pressure on the obturator nerve, and is increased by pressure on the hernia. Examination by the rectum and vagina is of the highest importance.

In the treatment, the taxis will sometimes succeed. If it fail, the hand must be passed into the vagina or rectum; and an attempt made to reduce the hernia by drawing it out of the foramen.

*Removal of hæmorrhoidal and other tumours.*—Mr. Henry Lee reviews the different operations practised by Brodie and others for the removal of hæmorrhoids, and remarks on the rapidity with which an elastic cord will cut its way through. He himself finds the best way of removing a pile is to grasp it at its base with a clamp made in the shape of a pair of scissors curved on the flat and with the points turned inward (a figure is given). One curved arm is thin and slips through a slit in the other. The advantages of this clamp are —1. That, being curved horizontally, it can be inserted between the nates, so as to grasp the base of the pile, without the latter being forcibly dragged down. 2. From the limbs of the instrument being curved inward, every portion of the pile is equally compressed and no part can possibly slip. 3. One blade is made to play within the other so that they cannot be displaced by any horizontal pressure. 4. The blades are sufficiently thin to allow nearly the whole, even, of a small tumour to project and consequently to be removed, on the concave surface of the clamp. After being grasped by the clamp the pile is cut off with a pair of scissors of the same shape, and the cut surface seared with an iron after it has passed from a dull red to a black heat. Mr. Lee has removed a large portion of the tongue with a similar instrument, and also a testicle affected with soft cancer, weighing rather less than a pound. The cord was seized with the clamp and cut with a pair of curved scissors. The cut surface was then seared in the way described. The wound was closed with carbolised sutures and healed very satisfactorily, although the patient had an attack of erysipelas of the skin covering some enlarged glands of the opposite groin. The heated iron is preferable to the galvanic cautery. ('Lancet,' April 18, 1874.)

*Resection of the os coccygis in cases of imperforate anus.*—M. Verneuil first performed this operation in 1864, and he has, in all, excised the os coccygis in five cases of imperforate anus, where the end of the rectum lay too deep to be easily reached. After removing from half a centimètre to a centimètre (0·4 to 0·8 inch) of the coccyx, the rectum was easily reached, and could be fixed to the skin without much stretching, especially where the bowel had a backward direction. Of the five children operated on, two recovered—a fairly good result, when it is remembered in what a weak state such children generally are when brought to the surgeon. ('Gazette Hebdomadaire de Médecine et de Chirurgie,' No. 25, 1873.)

Professor Th. Kocher has employed Verneuil's process in extirpation of the rectum on account of cancer. The field of operation was thereby rendered more accessible, and the escape of secretion from the wound and of fæces more easy. Dr. Kocher has operated in this way

in two cases, in both with success. A longitudinal section was first made in the fold of the anus over the back of the coccyx, which was removed; the incision was then carried towards the anus, and the diseased structure extirpated. The parts were so accessible that bleeding vessels could be tied at once, and the diseased glands on the posterior wall of the rectum were readily extirpated. Incontinence of fæces was obviated by pressing the buttocks together. ('Centralblatt für Chirurgie,' No. 10, 1874.)

*Treatment of non-malignant stricture of the rectum by incision and dilatation.*—Dr. Lente narrates a case in which he divided a long close stricture freely, anteriorly and posteriorly. Afterwards, the stricture was treated by a Whitehead's dilator (see last 'Retrospect') modified by the author. It resembles a small (india-rubber) umbrella distensible by water through a tube provided with a tap. The improvements consisted in making the central stem stronger and with a blunter point so as not to injure the rectum. The quantity of water injected was steadily increased from time to time. The central stem, if not flexible, should have a curve to adapt itself to the curve of the sacrum, and the part gripped by the sphincter must not be large. Dr. Lente reviews the opinions of authors in reference to incising strictures of the rectum. The balance is decidedly against such interference. The author, however, is a strong advocate for incisions, and thinks our improved appliances will enable us to deal with any hæmorrhage which is likely to occur. The use of bougies, it must be remembered, has dangers of its own, and authors all recommend caution in their employment. Dr. Lente is in favour of pretty free division. Although he can adduce but one case of his own, a more formidable one for operation could scarcely have presented itself where any operation short of colotomy would be thought of; the patient's general health being greatly impaired, the stricture unusually close, entirely undilatable, not admitting the finger as a guide, its linear extent and great irregularity and nodular condition giving it much the character of what is commonly diagnosed as a cancerous stricture. ('Am. Journ. Med. Sci.,' July, 1873.)

*Venereal stricture of the rectum.*—Dr. Mason writes on this subject. He is not of opinion that the strictures of the rectum commonly met with in women are due to constitutional syphilis, but thinks they are the result of local and non-infecting chancroids. The way in which these strictures arise may be—1. The walls of the rectum become inoculated through the secretions from the sores upon the vulva, thus giving rise to chancroid ulcers in this portion of intestine, and from the cicatrisation of these ulcers the constriction takes place. 2. The presence of chancroids either at the orifice of the vagina, or about the anus, gives rise to an inflammation of the areolar tissue surrounding the lower portion of the gut, and, by the effusion of inflammatory material at certain points, gives rise to constriction, either in this way alone, or by indirectly producing inflammation and ulceration of the mucous coat of the bowel. 3. From direct inoculation through improper connection—that this may occur none will deny; but the author had never met with an example. A table of thirty-one cases of venereal strictures of the rectum is given. In fifteen cases, there had been no symptoms

of constitutional syphilis. In fourteen cases, there had been such symptoms. In some of these cases, stricture appeared just after having had chancroids. The seat of the stricture, in sixteen cases, was two inches above the anus; in three cases, one and a half inches; in five, between two and three inches; in two, there were two distinct strictures; in three, one inch above the anus; in three, three inches above the anus. The age of the youngest patient was nineteen years; of the oldest thirty-seven years. In conclusion, the author says the disease appears to be peculiar to women; it occurs chiefly between eighteen and thirty-five years of age. The locality of the stricture, as a rule, is between one and two inches from the anus. Antisyphilitic remedies (mercurials and iodine of potassium) possess no beneficial influence over the disease. It is more frequent than is generally supposed. Though unwilling to deny that a constricture of the rectum might occur as a sequence of a syphilitic ulcer, yet we believe that such occurrence must be remarkably rare, and therefore the term "syphilitic stricture" is an improper one, and hence the disease being due to the chancroid should be known as the venereal or rather the chancroidal stricture. Where constitutional syphilis exists in a patient with this form of stricture, it is but a mere coincidence, there being nothing in the syphilitic disease preventing the patient contracting chancroids again and again. The author has practised incising the stricture several times with success. Dilatation with bougies should be kept up. In obstinate cases, colotomy is to be performed. ('Am. Journ. Med. Sci.,' Jan. 1873.)

*Treatment of fistula ani by the elastic ligature.*—Dr. Ventura Romanin relates in the 'Wiener Medizinische Wochenschrift' for July 4, 1874, six cases of anal fistula treated with the elastic ligature in the hospital practice of Dr. Menzel, of Trieste. The ligature was applied to fistulæ of various extent, except very small ones, scarcely extending above the sphincter, which were treated by the knife. To apply the ligature, an eyed probe was introduced through the fistula, being pushed through the mucous membrane of the fistula when blind, and bent down to the anal orifice. An elastic thread of the size of a quill was then passed through the eye of the probe, drawn through the fistula, and tied in two or three knots. One patient was operated on twice for fistula on the right and left sides of the anus.

The average duration of treatment was 46 days; the times in the cases being respectively 41, 33, 12, 12, 60, and 21 days, and four months. Excluding the last case, the average period was 29½ days. The ligature generally came away in six or eight days. All the patients recovered; there were no indications of tubercle in any of them. In one case only, the pain was very severe, lasting the whole time during which the ligature remained (three days); as a rule, it ceased entirely after a few hours.

Dr. Grandesso-Silvestri describes, in the 'Gazetta Medica Italiana Provincie Venete,' No. 30, 1874, a case in which he amputated the humerus on account of disease of the elbow-joint, by the elastic ligature. The operation had the disadvantage of being slow and painful, and of keeping the part which was being removed for a long time under the patient's notice—the removal not being completed till the

fortieth day. The forearm and part of the soft tissues below the ligature were removed on the day following its application.

*Syphilis communicated by vaccination.*—Mr. Hutchinson records two fresh cases which came under his notice (see preceding Retrospect), and makes some general remarks on the subject. The vaccine fluid is not the source of inoculation; it is probably the blood accidentally conveyed, or the fluid which drains away after the lymph has been exhausted. The vaccine vesicle may pass through all its stages characteristically, and then the syphilitic sore makes its appearance. It usually begins as a little, red, firm, glossy tubercle which gradually increases in size and becomes harder. At the end of a fortnight, or earlier, it usually ulcerates and presents a sore remarkable for its small amount of secretion and for the hardness of its base and edges. It may last for months before it heals, if no mercury be given. After healing it leaves a dusky brown scar, very different, indeed, from that of vaccination. Mercurial treatment should be adopted. The cases afford an interesting illustration of the manner in which mercury interrupts the evolution of syphilis and delays the occurrence of secondary symptoms. In all the cases which were not treated, secondary symptoms showed themselves from the sixth to the ninth week after inoculation, whilst those treated by mercury did not show symptoms until from five to seven months afterwards. ('Med.-Chir. Trans.,' lvi, 189.)

*Syphilitic disease of the patella.*—Mr. Howard Marsh details a case. The patient was a man, æt. 29. The primary disease had been acquired eight years previously. He had had a blow on the knee four years later, but he had no inconvenience for the next six months. When he came under care, the patella was enlarged in all directions. With full doses of iodide, his pain was relieved, but the size of the patella was not materially altered. ('St. Barth. Hosp. Rep.,' x, 395.)

*Surgery of the patella.*—Mr. Willett writes on this subject. He insists on the importance of giving due weight to the anchylosis or non-anchylosis of the patella to the femur, before giving an opinion as to the probability of restoring motion in any case of fixed knee-joint. The patella ought to move with the tibia, in fact, may be regarded as part of the tibia. When it is adherent to the femur, the function of the quadriceps is abrogated and the muscle wastes. The femoro-patellar adhesions may, of course, give way. Mr. Willett thinks that their formation may often be avoided by employing passive motion at an earlier date than is generally the case. Mr. Willett is of opinion that the patella is generally the agent by which the condyles of the femur are split from one another. He thinks it acts as a wedge when a direct blow is given to it by a fall on the knee, or by a kick from a horse over the patella, resulting in a splintering off of the external condyle. ('St. Barth. Hosp. Rep.,' x, 329.)

*The elastic ligature.*—Prof. Dittel, of Vienna, describes, in the 'Allgemeine Wiener Medizinische Zeitung' for February 25 and March 4, 1873, the application of the elastic ligature as a means of operating. His attention was directed to this by a case under his

care, in which a girl died of meningitis in consequence of her skull having been cut through by an elastic string which fastened her hair-net. He was then led to apply the elastic thread in the removal of tumours, &c. The following is his description of the process:

The proceeding is easy, but it requires a certain amount of care and precision, which may be soon acquired by patience. The part to be operated on should be supported or held up by an assistant, so that the operator may not drag on it and thus cause unnecessary pain. The ligature must be drawn tight and tied with two knots. The pain is not great, and generally lasts not more than a quarter of an hour. The division of the tissues is effected by the continuous pressure of the cord, which compresses the vessels until they are plugged. As the tissues are gradually cut through, a granulated furrow is left, and, when the part falls off, the ligature springs away from the granulations in the form of a ring with a very small aperture. The process lasts from three to fifteen days, according to the density of the tissues.

In a subsequent paper (ibid., July 22 and 29, August 5, 1873), he describes briefly a number of cases in which he had applied the ligature: viz., suppuration of the inguinal glands, with sinuses; fistula ani; prolapsus ani; hydrocele; phymosis; epithelioma; cystic tumour of breast; papilloma; polypus recti; castration; elephantiasis of labium majus; amputations of leg. Of the three cases of amputation of the leg, one died of pyæmia, and in another the patient was presenting pyæmic symptoms after date of the report.

The modifications of the proceeding are described by Dr. Dittel in the papers referred to, a full translation of which was given in the 'London Medical Record' for December 3, 10, and 17, 1873.

The publication of Dr. Dittel's first paper was followed by a note in the 'Gazzetta Medica Italiana Provincie Venete,' No. 23, 1873, by Prof. Vanzetti of Padua, in which he pointed out that the elastic ligature had already been inuse for several years in Italy. In 1862, Dr. Grandesso-Silvestri published in the above-mentioned journal an article in which he put forth a theory of the action of the elastic ligature closely agreeing with that of Dr. Dittel, and described cases in which he had carried the plan into effect with success. In 1863, Richard, of Paris, at the suggestion of Trousseau ('Gazette des Hôpitaux,' June 30, 1863) operated, by the elastic ligature, in 17 cases, the results being satisfactory. In 1864, Ciniselli used the elastic ligature for dividing abscesses ('Annali Universali di Medicina,' May, 1864). The process, however, seems to have attracted little notice till 1871, when Dr. Grandesso-Silvestri published a second paper, in which he described the elastic ligature as possessing the following advantages:—(1) Applied to arteries and veins, it produces obliteration of the vessels, without extension of inflammation beyond the point of ligature. (2) The ligature may be applied with impunity to tissues *en masse;* there is no risk of tetanus, while, if a nerve be included in the ligature, it is thoroughly compressed and ultimately cut through. (3) The method is applicable in the radical cure of varix, in which the application of an elastic ligature by means of a porte-aiguille produces better results than the écraseur. (4) No tissue, not even bone, resists the action of

the elastic thread. In his paper, Grandesso-Silvestri describes cases of removal of tumours, &c., by means of the elastic ligature. Vanzetti also says that the elastic ligature has been in use for several years in the hospital at Padua.

After reading Dr. Vanzetti's note, Dr. Dittel openly acknowledged the claim to priority of Dr. Grandesso-Silvestri; while at the same time he claimed for himself the merit of independent discovery, and of having rescued a useful mode of treatment from undeserved oblivion.

Dr. H. S. Schell describes in the 'Philadelphia Medical Times' for February 28, 1874, a successful case of operation on anal fistula by the elastic ligature.

Sir Henry Thompson notes a case in which he removed the whole breast by elastic ligature. He used fine tubing and tied the whole breast at once in two halves. This is unadvisable. The lower half should be taken first. In his case, the other gave way, so that, practically, two stages resulted. Erysipelas, prevalent at the time, attacked the breast, &c., but the patient recovered well. There is no difficulty in tightening a ligature when it gets slack. In future, he would use solid cord, strong and pulled tight. The smell of the sloughing mass is objectionable, and has to be obviated as far as possible by carbolic irrigation, &c. In the removal of the testicle, and for division of fistula in ano, he thinks the elastic ligature will answer well. ('Lancet,' Jan. 3, 1874.)

Cases under the care of Mr. Lawson Tait, showing the advantages of the elastic ligature, are related in the 'Lancet' for June 27, 1874.

Dr. Quinlan removed a large clitoris and prepuce by elastic cord. The ligature is painful on application and while cutting through the skin. ('Lancet,' March 7, 1874.)

Mr. S. Gale records a case in which he removed an epithelioma of the lower lip by elastic ligature. The whole sloughed off in a fortnight and in three weeks the patient was quite well. ('Lancet,' Jan. 17, 1874.)

*Absorption of an exostosis.*—Dr. Chiene narrates the following case. A lad æt. 14 was brought to him (April 12, 1873) in consequence of a hard, movable tumour under the muscles of the thigh above the inner condyle of the right femur. He had received a blow twelve months previously on the inside of the right knee. Swelling, &c., followed, and when this had subsided, he noticed a hard lump which could be easily moved backwards and forwards. The diagnosis was that an exostosis had been broken off. Soon after this, the tumour began to diminish and a year later, two years after the accident, a careful examination revealed only a slight linear projection, an inch in length, on the osseous ridge, leading up from, and about two inches above, the internal condyle. In other respects no difference can be detected between the two limbs. Dr. Chiene asks—1. Should not an attempt be made in the first place to break off an exostosis in the neighbourhood of a joint, without exposing it, by laying hold of it with large forceps well padded so as to prevent injury to the skin, in the hope that absorption of the tumour will take place in consequence of its principal blood supply being cut off? 2. When the surgeon meets with an exostosis which has been broken off by accident, he should wait and not cut down hastily on the

tumour to remove it. In such a case as the present one, there is always risk of implicating the knee during the operation. To run such a risk, when we consider how little annoyance the tumour was giving the patient, was, in his opinion, unjustifiable. The result justified the expectant treatment of the case. ('Edin. Med. Journ.,' July, 1874.)

*Subcutaneous fracture of an exostosis.*—In a case of exostosis of the outer part of the left thigh, close to the knee-joint, Mr. Maunder carried out the manœuvre of breaking the tumour off subcutaneously. The patient was a girl aged 16. The integument over the tumour was covered by a piece of leather and the growth laid hold of with a large pair of pliers, and broken off with comparative and unexpected facility. ('Med. Times and Gaz.,' Aug. 8th, 1874.) In the journal for Nov. 7th it is noted that the exostosis had reunited, but in a much less inconvenient position than before the operation. It then projected outwardly in a marked degree, and could not be handled without causing the girl great pain. It also prevented extension of the leg upon the thigh and thus rendered the patient comparatively helpless. The head of the tumour subsequently became displaced inwards, was absolutely free from tenderness, and the girl had perfect use of the limb. ('Lancet,' July 25 and Nov. 7, 1874.)

*Lesion of the upper dorsal spinal marrow with excessive lowering of temperature and pulse.*—Dr. Nieden records in detail a case of injury to the upper part of the back with loss of consciousness for a short time, complete paralysis of the lower extremities, of the chest, and of the greater part of the trunk. Stranguria. Progressive lowering of temperature and pulse. Consciousness perfect till the temperature was as low as 81° and the pulse 30 per min. Death on the eleventh day after the injury with a temperature of 80·6°. *P.-m.*—Dislocation without fracture of the first dorsal vertebra, compression of the corresponding portion of the spinal marrow, congestion of the lungs and of all the abdominal organs; heart distended with fluid blood; other parts of the body normal. The patient was 60 years of age. To account for lowering of temperature in injury to the spinal cord, various theories have been held. One makes it depend on position; another, extent of damage. Neither seems really to account for the phenomenon and the pathology so far remains perfectly obscure. "We shall understand our case better if we forget at present the hypothesis of a centre of heat and suppose that the cause of the anomaly of temperature is to be found in the want of proportion which exists between the proportion and loss of heat in a body disturbed in all its organs by such an injury to the nerve centre." When animals are covered over the whole surface of the body with varnish or oil colour they suffer from the same excessive sinking of temperature caused only by the enormous loss of heat on the surface of those animals. ('Clin. Soc. Trans.,' vol. vi, 1873.)

A case somewhat similar to this came under the care of Mr. Hutchinson at the London Hospital in November last. A man æt. 24 fell from a height with a load of bricks on his shoulder. When seen the day after, there was complete paralysis of the lower extremities. The line of anæsthesia extended as high as an inch above the nipple and to the elbows. He could flex the elbows (biceps) but not extend. The

breathing was solely diaphragmatic. There was marked priapism. The pupils were equal and of small size in a dull light. The temperature was 98°. The next day the pulse was noted as 36 in the minute, and small. In the evening, the temperature in the rectum was only 95·8°, in the distended penis 93°. The cardiac sounds were of course very distinct, owing to the slow action of the heart. His cheeks and lips were of very good colour, remarkably so; while to the touch they seemed as cold as those of a corpse. He did not complain of feeling cold. On the fourth day, the pulse was very weak, 35 in the minute. The temperature was 95°. On the fifth day, he was pulseless and insensible. He died on the sixth day from the accident. The temperature was frequently taken from the time of admission till death. It was only once as high as 98°, usually it was 94° or 95°. It was taken in the mouth, axillæ, rectum, penis, &c. The highest temperature from just before death till time of post-mortem was 95°. The autopsy showed fracture of fifth cervical vertebra and severe injury to cord at that part.

*Perforating ulcer of the foot.*—MM. Duplay, and Morat describe in the 'Archives Générales de Médecine' for March and May, 1873, the results at which they have arrived from a careful clinical and pathological study of this disease. Very various opinions have been advanced as to its nature; but none of the theories are applicable to all cases. The authors state that perforating ulcer of the foot, whether occurring in parts subjected to, or on parts free from pressure, is always dependent on a degeneration of the nerves of the foot. This degeneration may be altogether peripheric; for instance, frost-bite of the foot appears to produce degeneration of the nerves, and consequent disposition to ulceration; or it may arise from more remotely situated disease in the trunk of the sciatic nerve, as from wounds, pressure, &c.; or the source of the degeneration may be in the spinal cord or the spinal ganglia. The authors are therefore disposed to class perforated ulcer of the foot in the same category with the lesions of nutrition which, in the form of ulceration of the cornea, follow diseases of the trigeminus nerve. On this assumption, a ready explanation is afforded of the principal symptoms which always attend perforating ulcer, and which may be regarded as essentially disorders of sensibility and of local nutrition; the greater or less loss of cutaneous sensibility, the thickening of the epidermis, the malformation of the nails, the abnormal formation of hair and pigment. Around the ulceration, inflammation is developed, which implicates all the tissues, and shows itself sometimes in the form of extensive arteritis; a circumstance which had led many observers to attribute the disease entirely to arterial sclerosis. The prognosis of the ulcer will necessarily depend on the possibility of successfully treating the affection of the nerves. Sonnenburg ('Deut. Zeit. f. Chir.,' 1874, 416) details the case of a woman in whom a perforating ulcer of the foot followed injury to nerves (division). No treatment was of any avail.

(Various abstracts in relation to surgery of nerves, bones, cancer, &c., have been unavoidably omitted.)

# REPORT ON OPHTHALMOLOGY.

BY

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OPHTHALMIC SURGEON TO ST. GEORGE'S HOSPITAL.

*The treatment of lacrymal obstructions.*—Dr. Savary[1] calls attention to the limits of usefulness of probes in the treatment of affections of the lacrymal passages. They will overcome obstacles, but this is all, and they can neither re-establish a healthy condition of the mucous membrane nor cause contraction of a dilated sac. He advises that the probes should be used more sparingly than is the custom; and that, when obstruction has been overcome, the remaining morbid conditions should be treated by astringent injections. He prefers a weak solution of crystallized nitrate of silver (gr. jss ad ℥j), and injects it by the blunt conical nozzle of an Anel's syringe—not using the fine nozzles, for fear of inflicting injury.

*Extraction of adherent cataract.*—De Wecker[2] describes a new method of dealing with the cases of adherent cataract with closed pupil, which are left after the subsidence of certain forms of irido-choroiditis or of sympathetic ophthalmia; and this method differs from those already in use chiefly because he removes the lens, and establishes a pupillary aperture, by the same operation. He makes an incision with a Graefe's knife as if for cataract extraction, with a puncture and a counter-puncture on a line two millimètres below the superior horizontal tangent of the cornea, but carries the knife through and immediately behind the iris, so as to divide it almost to the extent of the external section. By pressure with the fixation forceps he causes the section to gape, and the lens to advance towards it; and he then divides the capsule in a line parallel to that of the wound, and nearly coincident with the equator of the lens, which is next pressed out in the ordinary way. He then introduces a pair of iridotomy scissors, with one blade in front of the iris and one behind it; and, by two cuts converging from the angles of the wound to a point below the position of the natural pupil, he excises a large triangular piece of iris, with the capsule and exudation matter adherent to it. This piece is then withdrawn from the eye by forceps, and the operation is terminated. If there is no important escape of vitreous, he is careful to remove, as far as possible, any remains of cor-

[1] 'Annales d'Oculistique,' vol. lxix.
[2] 'Wiener Med. Wochenschr.,' 1873.

tical substance; but if there should be any considerable outflow he leaves such remains to be absorbed. In most of the cases the anterior portions of the vitreous body have been thickened and altered by the inflammation, and show only a small tendency to escape.

*Paralysis of the inferior oblique.*—Cuignet[1] gives a full and interesting description of a case of this rare form of paralysis, of which Prof. Alfred Graefe asserts that he has never seen an example. The patient complained that all objects appeared to be in movement, and that he became giddy, but not that he had double vision. The left eye was turned downwards and inwards, the pupil dilated, the head drooping forwards, and inclined sometimes to the right, sometimes to the left. By the assistance of a coloured glass homonymous diplopia was rendered manifest. When the right eye was covered, and the patient attempted to walk by the guidance only of the left, he suffered from vertigo, and strayed from a straight line, first to the left, then to the right. The diagnosis was rendered difficult by the perfect and equal mobility of the eyes in all directions. The author put to himself the questions, Which side is in fault? and what muscle or nerve? Is it the left sixth nerve or the right fourth, or the left inferior oblique muscle? The two first-mentioned suggestions were dismissed by way of exclusion. It could not be the left sixth, because the degree of the internal strabismus was insufficient, the deviation was downwards instead of inwards, and the power of abduction was scarcely at all impaired; neither could it be the left fourth nerve, because the image of the left eye was in all positions lower than that of the right. An important indication that the inferior oblique was affected was given by dilatation of the pupil and impairment of accommodation, showing paralysis of the branch of the third, which proceeds to the inferior oblique, and which also supplies the circular fibres of the iris. The author sought for, but did not find, the divergence of the vertical meridians above, which has been described as an evidence of this form of paralysis.

The power of abduction was very slightly diminished; but, nevertheless, when the object was in the far left, the separation of the double images was diminished instead of being increased. With an object placed on the left the images would be twenty-five to thirty centimètres apart; but with an object on the extreme left the distance apart would be only ten or twelve centimètres. This was due to the integrity of the external rectus, which, when strongly called into play, was able to produce a degree of abduction which approximated the images. When the object of vision was placed above the eyes, I found, says the author, "the opposite of the condition generally described, that is to say, instead of a greater separation or rather a superposition of well-defined images, there was an approximation or even a fusion of them; to be explained somewhat, as in the case of extreme abduction, by the integrity of the superior rectus, which, under the influence of the will, supplied the want of action of the inferior oblique. In consequence, also, of the conjoint action of the superior and external recti, there was no diplopia when the object of vision was in a direction upwards and outwards." After having remarked that the distance between the

[1] 'Journal d'Ophthalmologie de Paris.'

double images increased in looking downwards and diminished in looking up, the author suggests that this phenomenon was due to the influence of the upper lids or the position of the eyeballs. They control the positions of the globe, not only in a vertical, but also in a horizontal direction, and they tend to direct the axes to the same point. On the contrary, in looking down, the globes escape from the influence of the upper lids; and the distance of the images increases in consequence of this loss of control; the lower lids having but little action of a similar kind. The author gives also an interesting account of the associated or concomitant strabismus; which sometimes adds to the difficulties of deciding on the paralysed muscle. To sum up: the symptoms of paralysis of the left inferior oblique were—1. The left cornea turned decidedly inwards and a little downwards. 2. Incomplete mydriasis. 3. Homonymous diplopia. 4. The false image always lower than the other. 5. Double vision of objects on the left. 6. Single vision of objects on the right. 7. Single vision of objects above. 8. Wide separation of images of objects below. 9. Approximation of double images on the extreme left. 10. Vertigo, displacement of objects, tendency to stray from a straight line. 11. The phenomena of concomitance.

In some remarks on the foregoing cases, Dr. Coppez[1] quotes with approval the observations of the author on paralysis of the sixth nerve (external rectus). He says that in this affection "all authors, and especially Soelberg Wells, state that the double images remain at the same height in all positions. This is not correct. In typical (that is, complete and recent) paralysis of the external rectus the images are only at the same level when the object is in the horizontal plane. If the object is above, the image of the affected eye is always lower than the other; and higher if the object is below. This is due to the circumstance that the paralysis of the abduction gives full play to the superior or inferior rectus, which, no longer corrected by the external, directs the eye upwards or downwards. Coppez says that he has been able to verify the accuracy of this statement in four patients, three of whom had complete paralysis of an external rectus, the fourth paresis only. In all, as soon as the flame used as an object rose above the horizontal meridian, the double images became uneven, that of the affected eye being lower than the other. In all, when the flame was placed on the level of the ground, the two images were homonymous and level; and it was only when the flame was brought within a foot of the patient that the image of the affected eye rose above that of the other. When the lamp was on the ground at a few yards' distance the two images were on the same horizontal plane. When it rose above the level of the horizontal meridian the difference in the level of the images was observed in every case. This difference of level, which all previous authors have omitted to mention, is not met with in long-standing paralysis of the same muscle, especially if the paralysis is complete; because then the contraction of the internal rectus becomes such as to restrain the movements of the eye, so that it rises and falls less, and the false image, that of the affected eye, is higher

[1] 'Annales d'Oculistique,' vol. lxix.

than the other for objects which are above, lower for objects which are below. A constant sign of paralysis of the external rectus—which is not given in books, but which Coppez says that he has seen in fifteen cases—is a considerable elevation of the external third of the eyebrow on the affected side; an elevation such as to alter the natural symmetry of the face.

*Operation for staphyloma of the cornea.*—De Wecker[1] describes his method of operating on cases of total staphyloma of the cornea, especially in children, in whom it is desirable to reduce the size of the globe only so much as to fit it for the reception of an artificial eye, and not so much as to interfere with the development of the orbital bones. He divides the conjunctiva, all round, at the corneal margin, and dissects it back, with the sub-conjunctival tissue, nearly to the equator. He then passes four sutures through the conjunctiva, entering his needle from without below the cornea, and from within above it. The four sutures are left as long loops, and two of them are laid aside towards the temple, two towards the nose. A Graefe's knife is then made to transfix the base of the staphyloma, which is next cut out by scissors, accurately at the corneal margin. If the lens does not escape, the capsule is divided to allow it to do so; and the sutures are tied so as to unite the wound of the conjunctiva in a horizontal line. If a bead of vitreous should project, another suture is applied at the place where it appears. De Wecker claims as advantages of his method that it leaves the ciliary region intact, that it secures a rounded stump for an artificial eye, and that its results in his hands have been eminently satisfactory.

The same author has published[2] a lengthy paper on his method of incising the iris to make an artificial pupil; a method which he calls iridotomy, to distinguish it from iridectomy; although, in his double iridotomy, the basis of the distinction is not quite clear. He uses for the operation a pair of small scissors, with very fine, flat, slender blades with rounded extremities, which open and shut after the manner of Liebreich's iris forceps. Simple iridotomy is performed in cases of laminar cataract, or of central corneal opacity, as a means of making an artificial pupil of a triangular shape, with its base towards the natural pupil and its apex towards the ciliary margin of the iris. An incision is made through the cornea near its margin with a lance knife, on the side opposite to that on which the iris is to be cut. The scissors are introduced closed; and, when they reach the further margin of the pupil, they are suffered to expand, and are pushed on, with one blade in front of the iris and one behind it, until their extremities approach the margin of the cornea. They are then closed and withdrawn, so that they leave a simple incision through the iris in a radial direction, which, gaping by the contraction of the muscular fibres, leaves the pupil that is desired. In double iridotomy, which is adopted only for cases in which a closed pupil is left after removal at the lens, the operator pushes a lance knife through both cornea and iris, near the margin, and carries the

[1] 'Annales d'Oculistique,' vol. lxix.
[2] Ibid., 1873.

blade onward in the plane of the iris and immediately behind it. He then introduces the scissors, one blade passing through the incision in the iris, the other into the anterior chamber. By simple closure of the blades an incision is made through the iris from one extremity of the wound to a point beyond the natural position of the pupil. A second incision, from the other extremity of the wound, is made in the same manner, to meet the first at an angle; and hence the knife cut and the two scissor cuts include and detach a large triangular piece of iris, which may then be withdrawn by forceps, and to which capsular masses and effused lymph will generally be adherent. In some cases, when the iris retains any natural contractility, it may be sufficient to make only one cut with the scissors, and this may gape sufficiently to allow of useful vision. The author prefaces his paper by an historical retrospect of all proposals of a similar kind; and enters fully into details with regard to the various conditions which may demand or may contra-indicate the operations which he describes.

The same author[1] advocates a new and simple method of bringing forward the internal rectus muscle in cases of insufficiency, or in cases of divergent squint. He divides the conjunctiva on the inner side, close to the corneal margin, to the extent of ten or twelve millimètres, and detaches it from the subjacent textures nearly to the caruncle. He then passes a squint hook under the internal rectus tendon and severs it completely from its attachment to the sclerotic. Through the tendon thus severed, and through the conjunctiva, as far back as may be needed, and on the horizontal meridian, he passes from within outwards a needle carrying a double ligature, which has another needle on each end. One of the latter needles is then carried through the conjunctiva from within outwards, over the attachment of the superior rectus, the other over the attachment of the inferior. The needles are cut off, the two ligatures tightened simultaneously, and firmly tied. A compressive bandage is applied, and the stitches are removed in from forty-eight hours to four days.

The very important question of the nature of the ophthalmia which has prevailed in pauper schools in the metropolis, of the causes to which it has been attributable, and of the character and extent of the lesions which it has produced, has been investigated with extraordinary care by Mr. Nettleship, whose results, which have been printed in a Report addressed to the Local Government Board, are such as to justify their reproduction in a form accessible to the profession generally. Mr. Nettleship's examinations were made between the 12th of August and the 24th of September, 1874; and the materials collected furnished data for ascertaining with more or less completeness the following chief points:

A. The present condition of the schools *collectively* as to ophthalmia; which for convenience is called the "*ophthalmic state*." It is prefaced by a short statement of the chief features of the disease, and by a definition of the word "ophthalmia" as used in the Report.

B. The *ophthalmic state* of each of the schools.

[1] 'Annales d'Oculistique,' 1873.

C. The connection between the *ophthalmic state* and the mode of life in these schools.

D. The relation of the *ophthalmic state* to age and sex in the schools.

E. The influence which conditions independent of school-life have on the *ophthalmic state* of the children in the schools.

F. Whether it is practicable to get rid of ophthalmia almost entirely from the metropolitan pauper children without abolishing the schools, and if so by what means.

### A.—*The Ophthalmic State of the Schools collectively.*

*Prefatory description and definition.*—Before passing to the details of this division it is necessary to describe shortly what is meant in the Report by ophthalmia and its consequences. It would be out of place to dwell on the distinctions between different kinds of ophthalmia further than to say that two distinct types of diseased action are generally found united in the cases which occur in the schools, and not unfrequently in those occurring outside the schools also. One of these is the *chronic* disease known as "granular lids" or "granular ophthalmia," a state which comes on in men and many lower animals under various unhealthy circumstances, and of which prolonged exposure to air made impure by organic matter and excess of moisture is probably the cause. The other includes all kinds and degrees of *acute* inflammation of the conjunctiva from the slightest attack due to wind, dust, or various other causes to the severest forms of purulent ophthalmia. Cases are sometimes still further complicated by obstinate inflammation of the roots of the eyelashes. By far the most serious visible results of ophthalmia are found in the opacities and irregularities of the cornea which it not uncommonly causes, and to which various degrees of defective sight are due.

The opacities and irregularities of the cornea above spoken of are broadly divisible into those produced by the friction of the rough "granular" eyelids over the smooth, transparent and highly sensitive cornea; and those due to ulceration of the cornea, varying from the production of small specks to the rapid mortification of the entire structure. Ulceration often comes on during acute ophthalmia, and is especially apt to occur, either with or without inflammation of the conjunctiva, in persons who are in low or bad health (or suffering, in common phrase, from "poorness of blood"). In practice the opacities due to friction are often found to be mixed with those caused by ulceration. Indeed, ulceration is often excited in feebly nourished persons by a rough state of the eyelids, and it is to a concurrence of either low health, or bad health, with granular lids in most of the children in these schools that the majority of the specks and opacities are due; neither low nor bad health nor granular lids singly would have such results in so many cases.

The granular state of the eyelids, when only slight or moderate in degree, is not *of itself* a matter of much importance in most cases. It gains great consequence, however, from the facts that eyelids so affected are far more susceptible to causes of acute inflammation than healthy

eyelids, that the inflammation is apt to become more severe, is much more difficult to cure, is far more likely to occur again and again, and generally leaves behind it an increase of the granular condition. Acute inflammation of a previously healthy conjunctiva is generally, except when of the severest type, a comparatively trivial matter; inflammation relatively mild in degree often leads to serious consequences when it happens in an eyelid which was already more or less granular.

The word "ophthalmia," in the Report, is used to mean such combinations of the above states (granular lids, acute inflammation of the conjunctiva, and corneal damages due directly or indirectly to these conditions) as require medical treatment for their own sake, or isolation for the sake of others. The symptoms by which the author has been guided were—1st, the presence of discharge from the conjunctiva, its quantity, and more or less purulent character; 2nd, ulceration, when still active, of the cornea; 3rd, inability to bear the light; 4th, constant winking due to the roughened conjunctiva irritating the cornea; 5th, many cases of bad granular lids, without present symptoms, have been counted for administrative purposes as cases of ophthalmia.

Granular disease of the eyelids, when uncomplicated, gives rise to no discharge from the eye, or at most to only a little, and it is not caused by contagion or infection. Any discharge that does occur will transmit inflammation, but will not transmit the granular state, to the eyelids of another person.

On the other hand, the forms of disease included under the title of acute inflammation of the conjunctiva, or acute conjunctivitis, are always accompanied by the formation of yellowish opaque discharge or "matter," varying much both in quantity and quality. Conjunctivitis may be set up by a great many causes, but in whatever way produced it can always propagate itself if the discharge is transplanted to another eyelid, either of the same or another person, and either of man or a lower animal. The discharge need not even be derived from an eyelid at all; matter from the urethra and vagina will cause conjunctivitis; indeed, the most violent form of purulent ophthalmia is that due to inoculation with gonorrhœal discharge; probably it may also be produced by matter from discharging sores on the skin. Discharge is most contagious when fresh and moist; when dried or freely diluted with water it is less powerful. When produced in very large quantities it may be transferred for a short distance through the air, but as this probably seldom occurs except when facilities for other modes of inoculation are very abundant, no great importance need be attached to it. Contagion is by far the commonest cause of severe acute ophthalmia; it is also a very common cause of the milder cases, but a considerable number of the latter are due to other causes acting on already granular eyelids. Amongst the commonest of these are strong winds, dust, particles of coal, soap, &c., draughts of cold air, blows on or near the eye, and lastly certain constitutional febrile diseases, especially measles and influenza. It is nearly certain that a large proportion of first attacks are, under ordinary circumstances, due to contagion, while most of the relapses are caused by some of the other causes acting on

granular eyelids whose irritability has been heightened by the first attack.

It will be evident, from the importance attached to the granular state in its various degrees, that some distinction is necessary between children whose eyelids are healthy and those in whom they are rendered liable to inflammatory action by this condition. Although no very sharp line can be drawn between eyelids which are absolutely healthy and others which are in the earliest stage of the granular disease, a separation of considerable practical value can be made without any great difficulty between children whose eyelids are healthy and those who are predisposed to ophthalmia, both these groups being again distinguished from children with badly granular lids or with active ophthalmia.

The "ophthalmic state" (including evidences of present and past disease) consists of the following *factors*:—*a*. discharge differing much in *quantity* and *quality*, the latter not being susceptible of precise measurement; *b*. certain opacities and irregularities of the cornea; *c*. the proportion of badly granular eyelids, predisposed eyelids, and healthy eyelids respectively; to these will be added in estimating the *past* state of a school, *d*. the proportion of children who have previously had ophthalmia.

*The ophthalmic state of the school*.—The number of children in the schools at the time of the inspection was 8798. This total includes 119 who were then at the Margate Infirmary for metropolitan children; and who were counted as belonging to the schools of which they would have been inmates at the time of the inspection if they had not been at Margate.

Of the total 8798, 12 per cent. had more or less conjunctival discharge. A few others had intolerance of light and active corneal ulceration. The per-centage of children with discharge, as well as the quantity and character of the discharge itself, varied greatly in different schools. In the great majority its quantity was small and its quality mild.

Another group of the children, amounting to about 30 per cent. of the whole number, had granular lids of considerable severity, although without any discharge or other discomfort. A large proportion of these, it is impossible without seeing them repeatedly to say how many, will again require treatment sooner or later, and some of them will have several relapses.

If we say that 15 per cent. of all the children (or about 1300) (12 per cent. with discharge and 3 per cent. for other symptoms) are suffering from active ophthalmia requiring isolation and more or less treatment, we shall certainly not over-estimate the number.

The actual number of children who were in the infirmaries for ophthalmia at the time of the visits was 579, or about 6·5 per cent. of the whole number; so it appears that 8 or 9 per cent. more were still at large in the body of the schools. Of course the infirmaries always contained the worst cases.

With a few exceptions which will be mentioned as they occur, the cases, even those in the infirmaries, were mild in degree; the inflammatory symptoms not being severe, the amount of discharge small or

moderate, and the danger of severe corneal damage slight. The cases remaining in the body of the schools (and which of course make no show in the medical relief books) were as a rule very mild indeed as regards actual symptoms. Almost all, however, both in and out of the infirmaries, had well-marked granular lids and would be subject to relapses often of a tedious character.

There were great variations between different schools in the *quantity* and *character* of the discharge; and, as these differences could seldom be recorded in detail, the mere *number* of children with discharge in each school is not a fair test of the severity of the disease therein. The chief differences will be noticed as they occur.

Still greater differences were found, between the schools, as to the minimum degree of ophthalmic affection for which isolation and treatment were thought necessary. A number of children with an amount of discharge which most doctors, and among them the author, would consider to involve a serious risk of contagion, were found at large in some schools, while at others almost every child with even a trace of discharge was in the infirmary. Deficient infirmary accommodation sometimes accounted for this, but not always; it sometimes was the result of deliberate purpose, because cases of the degree here indicated are not by all medical officers believed to be contagious, or because it is supposed that by concentrating a number of mild cases together into the infirmary the *intensity* of the disease would thereby be increased.

The number of children with healthy eyelids throughout the schools was equal to 15 per cent. of the whole number.

Lastly, there were 40 per cent. of the children whose eyelids were in a condition of slight disease, or who were in general terms predisposed to obstinate and relapsing ophthalmia. Many of this group had already had one or more attacks, generally mild ones.

The two last per-centages, however, require some correction for practical purposes. A child whose eyelids are in the slightly granular state ceases after several years to have any special liability to ophthalmia if during that time he happens to escape a first attack, and this notwithstanding that some remains of the granular condition still exist. For this reason 40 per cent. is rather too high a figure; probably 35 per cent. would be about correct, the other 5 per cent. being reckoned as healthy. This correction will be made throughout unless otherwise specified. We thus arrive at the following result:

TABLE I.—*Condition of the Eyelids in all Schools (neglecting fractions).*

| | Per cent. |
|---|---|
| 1. Healthy | 20 |
| 2. Predisposed to ophthalmia; many having already suffered from one or more attacks, but no serious changes yet produced | 35 |
| 3. Active ophthalmia | 15 |
| [Consisting of cases with discharge 12 p. c. | |
| ,, ,, other symptoms, 3 p. c.] | |
| 4. Bad granular lids without present symptoms; many of them extremely subject to relapses and to corneal damage | 30 |
| | 100 |

The amount of permanent damage to sight caused by this disease is the next important item in the actual state of the schools. A few words of explanation are here needed. The *degree* of damage to sight was measured only in the very worst cases; in all, excepting those headed "lost" and some of those headed "severe" the amount of damage represents only an *opinion* formed from the extent, position, and character of the opacities. It is likely enough, therefore, that the estimate of the number of cases with "moderate," "slight," and "very slight" damage respectively may be either over or under the real amount of each. The total number of children with damages of all degrees is, however, certainly accurate.

The corneal damages found in the schools have been divided into two main groups. One includes all which have no connection at all with the ophthalmia which forms the subject of this Report. In the other the damage was either caused directly by ophthalmia or the two were intimately connected; these are called the *ophthalmic corneal*

The number of children with ophthalmic corneal damages in all the schools was 793, or 9 per cent. In 353 of these both eyes were damaged, while each of the remaining 440 had only one cornea so affected.

With regard to the *permanence* or otherwise of these opacities it was again impossible to do more than offer an opinion. In general terms those which were in progress would most likely improve considerably, and some of them would disappear altogether; of such cases the author noted about 40. He suggests that he may have omitted to note a few others, and even supposing as an extreme case that there may have been as many as 40 overlooked, this would give only 80, or about 1 in every 10, in whom improvement was to be confidently expected. The great majority were evidently of at least several months', and many of several years' duration. The great majority of these will probably be permanent, though a certain number will slowly improve and perhaps quite disappear. We must, however, set against the improvable opacities a not inconsiderable number which are at least as likely to get worse; this is especially apt to happen in many cases of bad granular lids. On the whole, therefore, it seems likely that a large majority of the opacities will remain permanently almost as they were; that a few will quite disappear in a short time (a few weeks or months), and that a moderate proportion will improve more or less after several years, many having in the interval relapsed several times and become temporarily worse.

*The ophthalmic corneal damages* were classified in six divisions, as follows, according to their severity.

I. *Eyes lost* (*i. e.* either absolutely blind, or damaged so much as to be barely able to distinguish the outlines of very large objects, such as doors and windows).

Total, 44 children.—Both eyes lost . 2
1 eye each . 42

6 of these (losing 1 eye each) occurred outside the schools.

11 of them can perhaps be partly remedied by operation.

1 of them (losing both eyes) is accompanied and much increased by disease of the cornea due to inherited syphilis, and may improve after several years.

II. *Severe damages* (patient unable with the damaged eye to distinguish small objects at all, or at best only with difficulty and when held close to the eyes; enough sight for various household or other unskilled employments).

| | | |
|---|---|---|
| Total, 66 children.—Both eyes | . | 35 |
| 1 eye each | . | 31 |

6 of these (2 with both eyes damaged, 4 with one eye each) occurred outside the schools.

10 cases are likely to improve.

8 are accompanied and increased by inherited syphilitic disease.

III. *Moderate damage* (patient partially disabled for seeing small objects, *e.g.* needlework and reading, but able to do these with more or less difficulty).

| | | |
|---|---|---|
| Total, 229 children.—Both eyes | . | 147 |
| 1 eye each | . | 82 |

6 of these (3 with both eyes damaged, 3 with one eye each) occurred outside the schools.

15 cases (9 both damaged, 6 with one eye each) will probably improve.

6 cases (4 both damaged, 2 with one each) are likely to get worse.

4 cases are accompanied and increased by heredito-syphilitic disease.

IV. *Slight damage* (sight a little impaired by small specks at or close to the centre of the cornea).

| | | |
|---|---|---|
| Total, 358 children.—Both eyes | . | 144 |
| 1 eye each | . | 214 |

11 cases (4 with both damaged, 7 with one eye each) will improve.

6 cases (2 with both damaged, 4 with one eye each) are likely to get worse.

V. *Very slight damage* (cases like the former but slight in degree).

| | | |
|---|---|---|
| Total, 78 children.—Both eyes | . | 21 |
| 1 eye each | . | 57 |

VI. *No damage* (opacities and irregularities which from their position could not interfere at all with sight).

| | | |
|---|---|---|
| Total, 21 children.—Both eyes | . | 4 |
| 1 eye each | . | 17 |

No attempt was made to ascertain how many of the damages headed "slight" and "very slight" had occurred before the children entered the schools; but there is evidence to show that most of the slighter damages have occurred in the schools, while with regard to the great majority of the graver ones there is no doubt at all that this is the case.

The total number of corneal damages from all other causes (*non-ophthalmic damages*) was 59, or just ·66 per cent. of all the children.

The Report then proceeds to detailed accounts of the ophthalmic state of each school separately; but the only one of these accounts which possesses any general interest is that in which the author describes his

own experience of the epidemic which prevailed in the North Surrey Schools at Anerley. He says—

"Anerley is now in a very good state as to ophthalmia. The children actually at Anerley showed a smaller per-centage of active ophthalmia than those of any other school, so that for administrative purposes the North Surrey School is now the very best of all the schools in regard to this disease. For statistical purposes, however, it is necessary to include forty-three North Surrey children who are now at Margate, and most of whom were sent there by the advice of the managers, when the Bow Branch Ophthalmic School was closed. These forty-three children include all the most intractable of the ophthalmic cases which were at Bow, and when they are added to the main bulk of the children the total per-centage of cases with symptoms of active disease is raised, and the position of the school as a whole depressed to a corresponding degree. The per-centage of corneal damages (including those at Margate) is below the average, and the other records of past disease, though sufficiently abundant, are far less than at several other schools.

It is well known that Anerley has earned an unenviable notoriety for ophthalmia. In 1862-63 a severe epidemic occurred. It began in August, 1862, and after it had lasted about a year the late Mr. Poland was called in and made a special report. He found the disease then declining in virulence, but it had within the year caused the loss of four eyes and severe damage of six or eight others. Its origin was attributed to the importation of a severe case of purulent ophthalmia from St. Pancras, although mild cases had been well known in the school before.

In 1867 there was a great deal of ophthalmia, and it was chiefly on account of a continuance of the disease that the spacious new infirmary was built in 1868. The disease, however, continued very troublesome, and in October, 1870, Mr. Critchett was asked to visit the school, the result being a report containing suggestions which it is much to be regretted were not carried out at once. Mr. Critchett found a large proportion of mild ophthalmia which in most cases did not render the patients incapable of following the usual educational course, and he advised the establishment of a ward or separate school where all such cases might be kept for an indefinite time until it was quite certain that they would not relapse, where they might be under such special hygienic and medical treatment as seemed necessary, where their instruction and education should go on as if they were in the body of the school, and where by prolonged isolation they might be prevented from acting as sources of contagion to the healthy children in the school.

No action was taken on this advice, and the same state of things continued, and was intensified by 'great administrative neglect, necessitating considerable changes in the staff of the establishment.' (Dr. Bridges.) By the spring of 1873 the disease had been to some extent got under by the perseverance of the medical officer at Anerley, and by such reforms of administration as circumstances made possible at the time; but a good deal still remained to be done when practical

effect was given to Mr. Critchett's advice by the formation of a temporary combined infirmary and school at the new and unoccupied Whitechapel Workhouse in the Mile End Road.

All the children (numbering from first to last 390—400) who showed any, even the slightest, signs of active ophthalmia, and a good many in whom, though not actually present, the history of former attacks or the existence of granular lids made the occurrence of attacks probable, were drafted off from Anerley to this combined infirmary and school, where they were placed under special medical charge, and were also supplied with a liberal and efficient staff of teachers, nurses, and other officers.

As resident medical superintendent of the Bow School Infirmary during the twelve months of its existence, I had every facility for giving all necessary attention to the treatment of these cases; while through the liberality of the Board of Management, and the co-operation of Dr. Allen Duke, the medical officer of the school at Anerley, I enjoyed perfect freedom in the selection of cases to be sent from Anerley, and in the return thither of children whom I considered as cured. It was originally hoped that this separate establishment would be necessary for only six months; I thought it requisite, however, to advise its continuance, and Dr. Bridges, agreeing with me, recommended, partly from the ophthalmic point of view and partly because certain structural alterations at Anerley which ought to have been finished were as yet far from completed, a second term of three, or if necessary six, months, and the school was therefore carried on in all for a year. With regard to the result, while the plan was still in progress, Dr. Bridges wrote in his report (February, 1874), 'So far as it has gone, however, the success has been very marked. A certain proportion of cases, many of them children who have had repeated attacks of ophthalmia for years, yield very slowly to treatment. But there can be no question that the school [*i. e.* Anerley] is fairly on its way to a radical extirpation of the disease.'

Now that the work has been finished, I entirely agree with Dr. Bridges in the above estimate, and am quite satisfied that, although the result was not so rapid or so brilliant as was at first hoped for, under the circumstances in which the school was placed with regard to alterations and building at Anerley, no plan which included the maintenance of the ophthalmic children at Anerley would have been so successful as the one which was adopted by the managers at the recommendation of the Local Government Board. If my advice were asked under similar circumstances, I should recommend the repetition of a similar though not necessarily identical plan. Any scheme of this kind in future would, for instance, require a term of three or four years for its completion instead of only six or twelve months. Treatment similar in principle to what was carried out at Bow, but for a much longer time, is required in many cases. A very long time *and* a great deal of treatment are essential.

With regard to the effects of treatment at Bow the following figures, although of course furnishing very incomplete evidence, are reliable so far as they go. It must be borne in mind that the total numbers varied

both from the discharge of cases considered to be cured, and from the admission of fresh cases or of relapsed cases which had been discharged too soon. I have taken as data for comparison the proportion of children at different dates who were quite free from discharge in their eyes, and the proportion who had the largest quantity of discharge, these being headed the 'worst' cases. The first uniform and complete record of these particulars was made on the 4th August, 1873, the establishment having been in working order about eleven weeks; the last was made on the 20th April, 1874. I quote only a part of them.

*Bow Branch Ophthalmic School.*

| Date. | Total number of children under care. | Quite free from discharge | | Worst cases. (Cases with most discharge) | |
|---|---|---|---|---|---|
| | | Number. | Per cent of total. | Number. | Per cent of total. |
| 1873. August 4 | 260 | 75 | 28 | 40 | 15 |
| 1874. January 5 | 230 | 83 | 36 | 36 | 15 |

All treatment (excepting in a few bad cases) was now discontinued experimentally for three weeks. A large number of relapses took place, of which the following numbers give an imperfect record:

| Date. | Total number of children under care. | Number. | Per cent of total. | Number. | Per cent of total. |
|---|---|---|---|---|---|
| 1874. January 24 | 218 | 51 | 23 | 61 | 28 |

The per-centage of 'worst' cases was therefore doubled, and the proportion of mildest cases decreased by one third. Treatment was now resumed and kept up till the end.

| Date. | Total number of children under care. | Number. | Per cent of total. | Number. | Per cent of total. |
|---|---|---|---|---|---|
| 1874. February 19 | 177 | 72 | 40 | 6 | 4 |
| " March 23 | 171 | 61 | 35 | 14 | 8 |
| " April 29 | 173 | 72 | 40 | 11 | 6 |

The slight falling off in March and April as compared with the very rapid improvement between January and February was due to the east winds and rapid changes of weather at about that time. It should be added that the character of the cases marked 'worst' was as a whole milder towards the end of the term than at the earlier dates in 1873. Almost all the 'worst' cases on 20th April were extremely chronic and rebellious to treatment.

A good deal has been said and written in various quarters about the amount of success which has attended the Bow scheme. I shall, perhaps, not be passing beyond the limits of my subject in giving a short additional statement of my view of the matter, with the intention of reconciling certain apparently conflicting facts.

The Bow Branch School was eminently successful in proving that Mr. Critchett's suggestion was a practicable one, and that a large number of children suffering from such a degree of ophthalmia as to need isolation, and in most cases local medical treatment, can by such treatment, combined with dietetic and other hygienic improvements, be kept as a rule practically well, and able to go through very nearly the same amount and kind ef education as healthy children. It also had the positive result of keeping up to a large extent the normal educational course of a number of children, who but for this plan would have been subject to the usual infirmary life of these schools with its many evils.

In a good many cases, however, I did not succeed in *permanently* curing the disease. With regard to the *effects to be expected from local treatment*, I may perhaps be allowed to copy a statement of my own, which has lately appeared, as follows:—'One of the most important rules to be remembered here is that . . . . . there is no uniform state of improvement to which all cases of granular disease of the same severity can be brought by treatment. In this respect every case has its own standard, beyond which it cannot be carried, and this can be found with safety and certainty only by experience in each instance.' A great many patients can be kept perfectly well for an indefinite time by treatment. 'Below this point of excellence are all degrees of variation down to the point at which the most powerful treatment that seems safe has no effect at all beyond causing transient irritation,' while in a very few instances where the symptoms point to the necessity of treatment the disease is positively increased by treatment. This incomplete result I anticipated several months before the school was given up, and accordingly advised that when the time came for the Bow children to return to Anerley, such means should be taken there as might ensure a continuance of the full amount of good already effected. I suggested a still further time of isolation and of general hygienic measures, coupled with a continuance by some means of more personal local treatment of the cases than could fairly be considered to fall within the duty of the medical officer at Anerley, appointed as, with one exception, all these officers are, from men whose time is largely taken up by private practice. The isolation has been carried out, and to an incomplete extent the educational and medical measures also, the net result being that the improvement of the ophthalmic cases since they left Bow, although very marked in many of the children both at Anerley and also in the most intractable ones who were sent to Margate, has in a certain number not progressed (I speak of the state of things early in September last) quite so much as I hoped it would if my recommendations had been more fully carried out. I attach great importance to means which admit of the children's education being carried on, and a good deal of very tedious and somewhat skilled medical treatment is one of the essential conditions of this. To explain more fully; a large majority of cases of relapsing ophthalmia with granular lids can be kept well or very nearly well for an indefinite time by suitable treatment; the same cases, if not treated with sufficient vigour, will suffer for months or years from various degrees of ophthalmia, enough in most instances to interfere seriously with education, besides causing considerable risk of damage to sight. By a very long course (with or without intermissions according to circumstances) of this "pounding" treatment, the natural course of the disease towards spontaneous cure is much hastened, its severity as a whole greatly diminished, the accompanying risks to the cornea reduced to a very low degree, and a large amount of the children's time saved. It is of very great importance not to omit treatment altogether until at least from four to eight weeks after each case has reached the greatest amount of improvement of which it is capable.

In most respects the conditions are far more favorable to general

health and to recovery from this special disease at Anerley, with its high site and large grass-field, than they were at Bow, with its low foggy site and no open ground nearer than Victoria Park.

It has thus come to pass that though the Bow plan is said to have succeeded, there were still (at the date of my inspection) a large number (about 100) isolated, because their eyes were considered more or less unsafe, and 48 others under medical treatment for ophthalmia, so that the school appeared to compare unfavorably in this respect with many others.

The apparent anomaly is explained by the fact that a much higher standard as to ophthalmia has been practically carried out at Anerley than at any other school. Cases are isolated there which in every other metropolitan school would be left among the healthy children, and cases are kept on the Medical Relief Book at Anerley which at most other schools would not be returned as infirmary patients at all, but would either receive no treatment, or at the most be only 'out-patients.' I must explain that these extreme precautions are the fruit, chiefly, of a similarly high standard which I took when I first became acquainted with Anerley school. I took it then because the expressed opinion of some eminent oculists is in favour of the chronic granular disease of the conjunctiva (what I have here called the predisposing condition) being contagious, and I thought it prudent to act on that opinion, as far as circumstances allowed, so as to avoid all possible risk. Further experience has convinced me that this chronic condition, so long as it is unaccompanied by discharge, is not contagious, and I should therefore now draw the line at which isolation is necessary somewhat lower than I formerly did. I believe, however, that the medical officer at Anerley has thought it necessary to maintain almost unaltered the very high (and, as I now think, rather unnecessarily high) standard which I set up, and thus the number of cases which were still isolated at the time of my inspection was somewhat in excess of what I thought needful; while at the same time there were a few among them (and I may add a few also among those cases which were at Margate) who were not in my opinion receiving enough local treatment. The error as to isolation, if it be an error, is of course on the right side.

It has, I think, now been made clear that the number of cases which are isolated, added to those which are under treatment at Anerley, do not fairly represent the ophthalmic state of that school *as compared with other schools*, nor even as compared with the same number of poor children living in their own homes. If the standard in use at Anerley, or even the slightly lower one which I should now adopt, were applied to other schools, the result would show that almost all the schools are in a less satisfactory state, while several are in a far worse state, than Anerley is now; indeed a few of the schools were in a worse state as to eye disease when I inspected them than Anerley was before the curative measures of the last two years were undertaken.

I believe that the number of isolated children at Anerley has been gradually reduced since my last visit two months ago, and I have every reason to believe, from information quite recently sent to me by the

superintendent, that the school as a whole is even freer from the disease now than it was early in September."

With regard to the relation between the ophthalmic state and life in the metropolitan pauper schools, the author arrives at the following conclusions:

"1st. The number of bad granular lids varies directly as the length of time during which the children have lived in these schools;

2d. The number of ophthalmic corneal damages varies directly as the same time;

3d. The number of ophthalmic corneal damages varies directly as the number of badly granular lids."

The most important part of the Report, and that to which all the materials have been rendered subservient, is the question, stated under head F (see p. 358), viz. whether the disease can practically be got rid of from these schools. The question is one of national concern, and Mr. Nettleship's facts and arguments concerning it are of considerable importance, but occupy too much space to allow of quotation.

Whilst recognising that ophthalmia holds a subordinate place in the list of pauper difficulties, he holds that it is a very serious evil, both on account of the direct harm to sight and the loss of time caused by it, and because there is a close relation between the ophthalmic state of an institution and the general hygienic conditions of its inmates.

The question is treated in detail as regards, 1st, the introduction of the disease into schools from without; 2nd, its extension and spontaneous origin within them. The former can, he thinks, be effectually prevented only by a uniform system of quarantine, the second by very prolonged isolation and increased medical treatment. The plan proposed is to form one or more large establishments, which might serve the purpose of both quarantine and infirmary, and where, at the same time, the children's education might go on with the same regularity and nearly the same completeness as for the healthy children, who would on this plan be kept quite apart in separate buildings. It is thought likely that by a redistribution of the children, under a different plan of management, the existing buildings might be made to serve these ends. Many valuable facts and suggestions as to matters of detail are contained in this part of the report.

*Hereditary affections of the optic nerves.*—Leber writes on cases of disease of the optic nerves in which the malady was inherited or due to congenital predisposition. No cases have been recorded in modern times excepting by Graefe and himself. He details the histories of four families. 1. *Retro-ocular optic neuritis, central scotoma, hereditariness in a collateral line.* Five brothers were affected and two maternal uncles; a sister was not affected. 2. *Retro-ocular neuritis and neuro-retinitis in two brothers and one sister, partly acute, partly chronic—cure.* There were two other sisters and one brother unaffected. 3. *Retro-ocular neuritis in a brother and sister, resulting in a high degree of amblyopia from atrophy of the nerves.* Another brother and sister had no defect of sight. 4. *Central scotoma in consequence of retro-ocular neuritis, hereditariness in a collateral line.* No mention is made of the brothers and sisters, but it is said that two maternal uncles suffered

from the same affection. The total number of persons amounts to fifteen, but only nine of these were examined. If the cases mentioned by Graefe are added, we find that eighteen persons were affected in five families. A comparison of the cases examined shows that hereditary amaurosis depends on a *neuritis of the optic nerve-trunk*, which commences either as *retro-ocular neuritis*, or as a *neuro-retinitis*, and results in *partial*, or in rare cases *total*, *atrophy of the optic nerves.* The author then considers the symptoms which the disease produces, and more particularly *central scotoma; colour blindness;* the assertion of the patients that they see better *in the evening or in the shade* than in clear daylight, this applying also to cases, generally, of Graefe's retro-ocular neuritis; *subjective sensations of light and colours;* unusually marked variations in the amount of vision in two patients of the same family within a short time; the fact that both eyes were affected; the amount of vision remaining to the patients; and the applicability of the term retro-ocular neuritis to the cases. In some there was a decided affection of the optic disc and of the adjacent retina. As, however, these changes bore no relation to the gravity of the cases, and as, from other reasons, he concludes that the chief mischief was located in the trunk of the nerve, even for these cases the name retro-ocular neuritis is justifiable. At the same time the term *inflammation of the optic nerve-trunk* would apply to all the cases, as it would not exclude an affection of the disc. The ophthalmoscope rarely showed a normal fundus. There frequently existed a slight haziness of the margins of the disc and hyperæmia of the vessels, or even a distinct but slight neuro-retinitis, and often there were fine white streaks along the vessels or patches of exudation on the disc. A figure of such a case is given. Once a considerable injection of the small retinal vessels was noticed, especially in the neighbourhood of the yellow spot. He particularly calls attention to the fact that the arteries in this stage were not smaller than natural, as is frequently the case in optic neuritis, but were either normal or dilated. *In the later stages, atrophy of the disc and moderate diminution in the size of the retinal vessels result.* *Etiology.*—In two of the families actual inheritance in a collateral line was noted. In the other two, and in Graefe's, there was only a congenital predisposition. The latter is closely connected to the former, and is evidenced by several members of the same generation being affected. Collateral inheritance is a connecting link between these two. Direct inheritance has not come under the author's notice, but instances are given amongst those cited. The parents were not related, before marriage, in any of the cases. As in two of the cases, the mother remained free whilst her brothers were affected, it would appear that men are more liable than women. In the first family the only daughter alone remained unaffected. In the second, of three sons and three daughters, two daughters and one son escaped. In the third, of one son and three daughters, two daughters escaped. Women are not exempt. In each of the second and third families a daughter was affected, and in these instances it would appear that if women are attacked, the disease runs a more acute course or attains a higher degree of severity. *The age at which the patients were affected* varied in

his cases from the thirteenth to the twenty-eighth year. The same variation occurred in the same family. In the family of which the history is given by Graefe, and also in the fourth of the present series, the individuals were attacked at nearly the same age (19—20). Travers notes the time of puberty, Sanson the age of 21, and Brown 16 to 17. Lucas mentions a notable instance of amaurosis attacking members of three generations at a successively earlier age in each (the grandmother at 35, the mother at 19, the children at 13 and 11). Other authors have noted cases as early as six and nine years of age, and others at later periods, the climacteric, or later still. In most of the author's cases other symptoms of slight nervous affections were present. *Result — prognosis and treatment.* — Notwithstanding the hereditary origin of the disease, the result is not always unfortunate. In some cases a cure practically results, only a slight amblyopia remaining. Even in the worst cases complete blindness does not result. If absolute blindness exists in the centre of the retina, a cure can only follow in recent cases. The prospect of restoration of vision in the affected parts is greater in proportion to the early stage of the disease, the slight degree of diminution of vision in the central scotoma, and the normal appearance of the optic disc. Complete pallor of the latter does not, however, exclude a restoration of vision. The prognosis seems more favorable in acute cases than in those which are slowly progressive. Moreover, there is undoubtedly a *difference in the degree of the malignancy of the affection in different families.* There is what may be termed a *genius morbi familiaris.* As regards treatment, the employment of mercurial inunctions is advocated. Graefe notes sweating as a curative means. Local bloodletting is discussed. The use of the constant current is spoken of favorably. Tonics and injections of strychnia were not found of any use. In conclusion, the author advocates the further trial of the constant current, the materials at command at present being insufficient to allow of a true estimate of its value being arrived at. (Graefe's 'Archiv f. Ophth.,' xvii, B. Abt. ii, pp. 259—291.)

*Congenital and hereditary disease of the eye in several members of the same family.*—Optic atrophy in a father in one eye from childhood. Convergent strabismus and nystagmus, with good vision in the eldest daughter, with a peculiar condition of the optic nerves. Typical retinitis pigmentosa in two other children; a girl of 21, and a lad of 17, and in the girl nystagmus, convergent strabismus, and high hypermetropia. (Dr. Herm. Schmidt, 'Klin. Monatsbl.,' Jan., 1874, p. 29.)

*Affections of the optic nerves in three brothers.*—Dr. Alexander, of Aix-la-Chapelle. The disease was of a similar character in each, and made its appearance in February, March, and July, respectively, in the same year. The ages of the patients were 29, 23, and 20. There was haziness of the margins of the disc, and of the surrounding portion of the retina. The vision was greatly impaired. No atrophy resulted while under observation. A brother of their mother had some defect of sight. Dr. Alexander regarded the malady as a retro-ocular neuritis. ('Klin. Monatsbl.,' Feb., Marz, 1874, p. 62.)

*Syphilitic choroiditis.*—Professor Förster, in a paper in 'Graefe's

Archives,' gives the results of his clinical observations on choroiditis syphilitica.

*Objective symptoms.*—He thinks the complication of very fine dust-like opacities of the vitreous is seldom absent, and is a very early symptom. These opacities are especially found at the posterior, lower, and central portions of the vitreous humour, the upper and lateral portions being generally freer from them. This he has observed to pass into such a dense opacity that the optic disc was no longer visible, though more frequently he has had the opportunity to observe the clearing of the vitreous. It is usually very obstinate, and some remains of the opacity are left after the diseased process is passed, causing the vessels of the retina, the inner side of the optic disc, and the central portion of the retina to have a grey veiling over them, the periphery being generally free. The changes of the retinal vessels, apart from this veiling of the central ones, he thinks are trifling, and not to be relied upon. Circumscribed changes in the red colour of the retinal ground, he says, are present in at least a third of the cases, are more frequent in the region of the macula, and consist of groups of light red or white spots, and sometimes of larger light-grey spots. These must be carefully looked for, as they are not always very apparent. The usually recognised pigment changes come much later.

*Subjective symptoms.*—These are important. The acuteness of vision is in mild cases lowered to $\frac{3}{4}$ or $\frac{1}{2}$, but without much objective change may go to $\frac{1}{10}$ or $\frac{1}{100}$. The peculiarity of the defective vision is, that the fixation point itself is fairly seen, while there is a more or less regular ring-formed defect round it, the periphery still acting properly. The defect may run out to the periphery of the field of vision here and there, leaving the visus reticulatus, which is the result of this affection more often than of any other. In the first stage small defects of vision towards the blind spot may be seen, which do not give a bad prognosis. Hemeralopia is a highly constant symptom, which Professor Förster measures by means of his "Lichtsinnmesser." The light perception he finds much more lowered than the acuteness of vision, and the light perception can undergo considerable deterioration, although the acuteness of vision is very little altered. Sometimes the hemeralopia is present only on certain parts of the field of vision. Another very constant symptom he believes to be subjective light sensations, generally in the region of the fixation point, consisting of transparent spots in the form of discs, rings, or oval figures, which move with a shaky velocity. These, if lasting, prove a defect, which may be found if carefully looked for. This photopsy passes away if the patient is kept at rest, but any excitement of the circulation is sufficient to call it up. Micropsy, as noticed by Mooren and Schweigger, is also sometimes present, depending, Förster thinks, on the retinal change, and not on the accommodative apparatus. The accommodation is lessened, and he thinks he has observed a degree of myopia developed during the course of the affection, but never any hypermetropia. Iritis is not uncommon, either before the choroditis or succeeding it, but it does not produce lasting posterior synechiæ, does not go the length of the closure of the

pupil, and has no inclination to become chronic. The choroid is thought to be the chief seat of the disease and the tissue first involved.

The course of the affection is very varied and subject to relapses, which are diagnosed by loss of acuteness of vision, a return of the hemeralopia and photopsy, before the ophthalmoscope gives any appreciable changes. The results he has obtained have been mostly favorable, with a more or less lowered acuteness of vision, sometimes a high degree of amblyopia with visus reticulatus, and rarely perfect restoration. Where the acuteness of vision is under $\frac{3}{4}$ or $\frac{1}{2}$, vitreous opacities of different forms, small or great changes in the choroidal pigment, atrophy of the retina, or white spots of round or radiating forms in the region of the macula lutea, are found. The optic disc is of a homogeneous yellow white, with the vessels few and thready, giving so exactly the appearances seen in retinitis pigmentosa, that the differentiation of the two affections by the objective appearances only may be very difficult. He avers that it comes much more frequently in later life than in youth. Of 55 cases two were in their 24th year, and the remainder were over 27, 14 of them being between 51 and 60. It occurs equally in males and females in hospital practice, both together giving a proportion of $2\frac{1}{2}$ in every thousand ophthalmic cases.

The treatment he relies upon is the mercurial, with simultaneous residence in a dark room for at least four weeks. Corrosive sublimate or calomel he has seen benefit from, but relapses were frequent after the former, and always after the latter, while all those cases where no relapse occurred were those in which mercurial inunction had been employed till the beginning of mercurial stomatitis was observed with a sojourn in a dark room, for the most of the time in bed. He thinks the use of the artificial leech and large blisters on the neck are useful secondary means, but to be used in connection with the mercurial treatment and not to be relied upon alone. (Graefe's 'Arch. f. Ophth.,' xx, Abth. i, p. 33.)

*Optic neuritis from lead-poisoning.*—Dr. Schneller ('Zehender's Klin. Monat.,' 1871, p. 240) records a case of optic neuritis from lead-poisoning. The patient was a house painter, æt. 44. As an apprentice he had suffered from an attack of lead-colic. Four years previously he had had a chancre, not followed by any secondary symptoms. He was a smoker. Eight days before he had complained of defect of sight. He had M. l. $\frac{1}{50}$, r. $\frac{1}{28}$; V. l. $\frac{11}{100}$, r. $\frac{12}{20}$. Colours, as far as could be tested by coloured papers, were correctly distinguished. The peripheral field of vision was unaffected. The pupils were somewhat dilated. Ophthalmoscopically the discs were considerably reddened, not swollen, slightly hazy; the borders were a little indistinct (left above, inner side and below, the right only below), being covered by a slightly reddish layer, which caused the retinal vessels to be almost imperceptible in places. The haziness only extended very slightly beyond the borders of the discs. The arteries were very tortuous; the veins resembled the arteries in thickness and appearance (having a central light streak and two red lateral ones) so much that they could only be distinguished from them with difficulty. In other respects the fundus in each eye seemed normal. There was a bluish line on the gums, which appeared

retracted from the teeth. After the application of leeches on two occasions the sight did not improve. The treatment consisted in purgatives, iodide of potassium, protective glasses, and cessation from occupation. At the end of a month the patient resumed work without taking any precautions, and in spite of warning. In two months, date of last note, it is said the veins had gradually become dilated, and appeared more normal, that is, the light streak was less marked. The arteries were less tortuous, but more so than normal. The discs were paler, scarcely at all reddened or blurred at the margins. About eighteen months before, Dr. Schneller had seen a similar case in a painter. He had congestion of the discs and slight haziness, without dilatation of retinal vessels. He remarks that he considered the optic neuritis proved by the presence of redness, alteration in the margins of the disc, and slight cloudiness of its substance and the immediately adjoining retina. The second point distinguishes this form from choroidal hyperæmia, the third from that of simple hyperæmia of the discs.

That this optic neuritis proceeds from lead-poisoning is proved by the occupation, the bluish-grey line on the gums, the costive stools, the greyish cachectic colour of the skin, the relapse on resuming the occupation without precaution, and the absence of other etiological influences. These peculiarities appear in connection with tolerably marked congestion of the discs—without disease of the choroid and retina—with slight haziness of the optic disc, with slight differentiation between the veins and arteries, and with marked tortuosity of the arteries.

The changes in the veins, which, together with the tortuosity of the arteries, disappeared as the other symptoms receded, could not be due to thickening of the walls of the vessels, for there were no accompanying whitish streaks. Neither could they be due to diminution of the blood-pressure in the retinal arteries, as these did not contain less blood than usual. They are therefore to be ascribed to a morbid condition of the vascular muscular tissue, which is analagous to the symptoms of lead-colic. This may produce a stagnation of blood and congestion of the capillaries and arteries of the retina, which may share in the congestion of the disc, and may at all events produce the tortuosity of the arteries, while it is not sufficient to dilate the arteries.

*Anatomical researches on typical retinitis pigmentosa.*—Dr. Landolt narrates two cases of retinitis pigmentosa. The first patient was a man. In both eyes there were anterior and posterior polar cataracts, a few delicate films in the vitreous, complete atrophy of the optic nerves, the vessels were much diminished in size, their walls were partially apparent as white streaks, but in the periphery no vessels could be detected. The retina throughout the whole equatorial region, extending to the neighbourhood of the disc and some distance into the periphery, was beset with dark pigment arranged in the form of a network or of bone-corpuscles. The layer of pigment epithelium was almost devoid of pigment. At isolated points only were there roundish or annular heaps of pigment. There was no evidence of exudation or other change underneath this layer. *His parents were not related,* and

did not suffer from any eye disease, nor did his brothers and sisters, with the exception of one sister who had become blind from glaucoma. The first symptoms were noticed when he was fourteen years old. He then suffered from hemeralopia, but could still read and write. When twenty years of age his sight only enabled him to find his way about. When seen his vision only amounted to incomplete perception of light and dim vision of large objects. He became very anæmic, and died of cirrhosis of the liver and kidneys. Careful microscopic examinations of the optic nerves, retinæ, &c., were made. The second patient was also a man, æt. 39. The parents were not related, and no member of the family suffered from eye disease. He had always had defective sight, and from the age of eighteen had been completely blind. The opthalmoscopic appearances were those of typical congenital retinitis pigmentosa. The patient became anæmic and dropsical. There was no apparent disease of the heart, and only a trace of albumen in the urine, and the latter gradually disappeared. At the *post-mortem* general wasting, with chronic interstitial nephritis, &c., were found.

The following is a brief summary of the results of the examination of the two cases. The chief changes were found in the retina; almost total disappearance of the nervous elements and of the rods and cones; a very high degree of hyperplasia of the existing connective tissue, and the formation of new connective tissue in the connective-tissue framework and in the walls of the vessels. The latter were much thickened, their calibre diminished and their finest ramifications completely degenerated into connective tissue. Their walls contained masses of pigment which had either migrated from elsewhere, or was an endogenous production, and was partly enclosed in cells and partly free. The pigment had in great part vanished from the epithelial layer, and was collected in isolated positions along the course of the retinal vessels. In the choroid in the first case, thinning of the capillary vessels and pigmentary infiltration of the same were found, as well as an abnormal fusion of the layers together. The portion of the vitreous nearest to the retina was altered in structure, infiltrated with colourless blood-cells and with pigment-granules, and in the second case was too fluid. The lens was affected with polar cataract. These changes do not differ from those met with in other cases which have been examined. No glandular excrescences were found in the choroid, as described by Leber. The choroidal changes were very slight, and this fact showed that they were really cases of retinitis pigmentosa. The changes found all pointed to a *chronic inflammatory process, which was chiefly situated in the retina, and more particularly in the vessels of the retina.* The walls of the peripheral retinal vessels become inflamed, their connective tissue hypertrophied, and at the same time also hypertrophy of the surrounding connective tissue is set up. The nervous elements disappear, owing, at first, to pressure, and, later, to failure of nutrition, dependent on narrowing of the calibre of the vessels. The retinal function is abolished. The process gradually encroaches on the central parts, the field of vision becomes narrower and narrower. No symptoms of stasis develop, because the process is so gradual. The morbid process extends more deeply; the epithelial layer immediately

under the vessels becomes first affected, the pigment passes forwards along the passages of new connective tissue formed by the inflammatory process. When once it has arrived at the wall of a vessel it may either pass further or form collections of pigment there. The latter occurs the more readily owing to the altered blood-pigment present in the obliterated vessels. The further steps of the process are given in detail. The last of the inflammatory changes is the polar cataract, due probably to the abnormal state of nutrition of the vitreous. The choroid need not share in the process, but if we find excrescences from the part lying immediately under the diseased retina, we need not be surprised. In the same way we are not astonished to find, as in the second case, that the walls of the choroidal vessels are affected in a similar way if once the disposition to inflammation of the walls of the vessels is present. The thickening of the walls of the retinal vessels found on microscopic and ophthalmoscopic examination tends to support the view that retinitis pigmentosa is a very chronic peri-vasculitis of the retinal vessels. The cases of retinitis pigmentosa without pigmentation support the same view. In these the process is confined to the inner layers of the retina, yet the objective and subjective results are the same. Perhaps the morbid process in retinitis pigmentosa may be compared to that in cirrhosis of the liver or kidneys. The first patient died of cirrhosis of the liver, the second of chronic interstitial nephritis associated with changes in the liver and spleen.

The author alludes to the results of the experiments of Dr. Berlin, who divided the optic nerves in frogs and guinea-pigs. ('Zehend.-Klin. Monatsbl.,' ix, 277.) Not only atrophy of the cell-elements of the retina followed, but also the pigment partially disappeared from the epithelial layer, and passed into the innermost portions of the retina. The changes were therefore similar to those met with in retinitis pigmentosa. There was no marked hypertrophy of the connective tissue, however, and the granular layers as well as the rods and cones were preserved. These experiments are perhaps rather of value as showing in what way the pigment may reach the retina. It must not be forgotten, however, that the vessels were divided at the same time as the optic nerve. The results of this double section cannot be estimated apart from one another. Illustrations accompany the paper. (Graefe's 'Archiv f. Ophth.,' 18 B., Abth. i, p. 325.)

*Retinal affections in traumatic fever.* By M. Roth ('Deutsche Zeitschr. f. Chirurgie,' i, 147, Sept. 1872).—*Embolic panophthalmitis.* A woman, aged 32, was seized with an affection of her eyes three days after the birth of a child. Three days later she died. The result of the examination led to the diagnosis of retinitis embolica dextra, with secondary panophthalmitis of a puerperal origin. The starting-point appeared to have been the retina, in which, below and at the outer side of the optic disc, were numerous extravasations, and the vessels were extensively plugged with masses partly homogeneous and fragile, partly granular. The granular masses consisted of small, round, and biscuit-shaped corpuscles. The vessels which were plugged had undergone marked fatty degeneration. The posterior part of the retina was opaque, and infiltrated with isolated extravasations; the whole of the

choroid was thickened and infiltrated with pus. The ciliary body and, the vitreous contained pus-cells. In the anterior chamber were pus-corpuscles and granular clots. The conjunctiva was swollen and ecchymosed. Greyish-yellow deposits were found on the mitral valves, which were thickened. No microscopic examination of the deposits was made.

*Retinitis septica*, in consequence of traumatic fever.—This form is distinguished from the preceding by (1) its more frequent occurrence; (2) its comparatively harmless character; and (3) by the fact that it is not generally embolic. In the neighbourhood of the optic disc and of the yellow spot there are a number of small,. white, or it may be red spots, which are mostly present in both eyes. The white spots, anatomically, consist of thickened and hypertrophied nerve-fibres; the red spots, of acumulations of extravasated red blood-corpuscles. Similar accumulations are met with in the retina in Bright's disease and in cerebral affections, as well as in other chronic or acute diseases. Pyæmia seems, however, to be more specially connected with these changes, and more frequently than other affections. The author thinks these collections depend on a chemical change in the blood, and proceed from multiple abcesses containing apparently good pus; particularly, however, from septic conditions and widely spread putrefactive changes. The earliest period at which the retinal changes appeared was, in one case, eleven days after the commencement of the disease; in the other cases the disease had lasted several months. Nine cases are related. The author alludes to a case communicated by Virchow, in his, 'Archiv,' as the only notice of the subject he can find, and this has not attracted much attention. ('Zehend. Klin. Monatsbl.,' x, p. 346.)

*Commotio Retinæ*.—Dr. Berlin writes on the effects produced on the eye by blows from blunt objects, not causing any apparent injury. The first symptom is considerable diminution in the acuity of vision in the centre of the field, and marked resistance of the sphincter pupillæ to the influence of atropine. Within a short time a distinct haziness of the fundus over a considerable area becomes developed; sometimes small hæmorrhages result. The changes are most marked around the disc and yellow spot. In one case there were two separate patches. The ophthalmoscopic appearances reach their highest development in 24 or 36 hours, and disappear in two or three days, in proportion to the violence of the injury inflicted. The sight improves greatly at first, and then remains stationary; some defect remaining after the retinal haze has vanished. The deficient reaction of the pupil to atropine lasts about as long as the defect of sight. Dr. Berlin gives an account of experiments he has tried on the lower animals. A direct blow on the eye produces changes in the portion of retina directly opposite. An indirect blow produces changes in the portion of retina which would be cut by a line continued in the direction taken by the foreign body. On examining the eyes experimented on, he found that extravasation of blood had occurred between the choroid and sclerotic. The chief injury consisted in a rupture of choroidal vessels. He thinks the transitory character of the symptoms accounts for their not having hitherto attracted attention. He has come to the conclusion that the defect of

sight, in many cases, has no connection with the retinal haze. In his opinion it is due to "transitory, irregular astigmatism." He discusses the whole question at great length. The blow may easily influence the lens, and may lead to hæmorrhage in its neighbourhood, which may also influence its form. He disbelieves in "commotio retinæ" altogether. The blow directly influences the part struck in front (lens, iris, &c.), and drives the eyeball against the wall of the orbit. The back of the eye is therefore affected as if by a direct blow from the wall of the orbit; that is, a blunt object. The blow in front would not produce any changes in the fundus, unless the back of the eye struck some object. ('Klin. Monatsbl.,' Feb., März, 1873, pp. 42—78.)

*Sympathetic ophthalmia.*—Prof. Arlt discusses the anatomical changes met with in sympathetic ophthalmia, the causes which give rise to it, and its treatment. He also gives an historical summary of the literature of the subject. He mentions the case of a lad who was stabbed in the left eye. The wound involved the cornea, iris, and lens, and the latter swelled up, and the pupil became closed. Subsequently sympathetic irido-cyclitis attacked the right eye. Iridectomy was performed on the left eye, and then on the right, and subsequently on the left again, with success. The lad was under care for four years. The author remarks that, had he enucleated the left eyeball, he would not only have done what was useless, but even what was unjustifiable. In any case in which the onset of sympathetic ophthalmia is likely to occur, or in which it has already set in, he insists strongly on abstinence from any employment of the eyes and the avoidance of exposure to strong light. ('Wien. Med. Woch.,' Feb. 1, 8, and 15, 1873.)

*Temporary blindness in connection with disease of the kidney after scarlet fever; recovery.* By R. Förster.[1]—A child, two years old, who was recovering from scarlet fever, again became feverish, and had albumen in the urine twenty-five days after the commencement of the illness. Eight days later the child became blind, and continued so for sixteen days, when, in the course of a few days, the sight became completely restored. The author remarks :—1. On the date at which the blindness came on, quite after the expiration of the exanthematic period; 2. It came on eight days after the appearance of albumen in the urine, and when this was already disappearing; 3. It only disappeared after the albumen, &c., had vanished for some days; 4. Œdema and uræmic convulsions did not occur at all.

Three analogous cases have been recorded in typhus, and four in scarlet fever. The former, during the fever; the latter, 15, 20, 25, 26, and 32 days respectively after the appearance of the eruption, coexisting with Bright's disease, and except the last case, with uræmic convulsions. The duration of the blindness was, in Ebert's case, from 20—60 hours; in Henoch's, 24—48 hours; Tolmantschew's, 7 days; Förster's 16 days. In all, except the last, the kidney disease persisted after the restoration of sight. Ebert recorded one case in typhus and three with scarlet fever ('Klin. Monat. f. Augen.,' vi, p. 91); Henoch, one case with typhus and one with scarlet fever. ('Berlin Klin.

[1] 'Jahrb. f. Kinderheilk. und phys. Erziehung,' Jhrg. v, p. 325, June, 1872.

Woch.,' Nr. 2, 1868); Tolmantschew, one case in typhus ('Jahrb. f. Kinderheilk.,' p. 219, 1869; ('Zehend. Klin. Monatsbl.,' x, p. 346).

*Glaucoma.*—L. Rydel contributes a paper on this subject. He details a case in which a man who had suffered from symptoms of glaucoma for three weeks, suddenly lost the sight completely in one night. He explains this as due to increase of pressure shutting off arterial supply and paralysing the retina. He agrees with Graefe that the blindness in acute glaucoma is due chiefly to ischæmic paralysis of the retina. The author thinks the same explanation applies to variations in chronic glaucoma. Cases of deep excavation with slight defect of sight are wholly exceptional, but possibly analogous to cases in which the brain becomes adapted to slow pressure. He discusses the question of concentric narrowing of the field. The defect beginning in the ends of the nerves at the outer half of the retina he explains by the distribution of the vessels and the position of the disc. The inner half of the retina is more richly supplied with blood than the outer, and the vessels to the outer half have a longer course. He quotes Poiseville's laws as to the influence of the length and size of vessels on the quantity of blood passing through them. For the exceptional cases of glaucoma in which the temporal side of the field fails first, he has no explanation to offer. In regard to the subjective sensations of light of which amaurotic, glaucomatous patients complain, he remarks on the probability of their being explained by oscillations in the amount of blood-supply. At one time there is less pressure, as we know by the tension, more blood is supplied, and this irritates the nerve-fibres. They may at the same time be quite unaffected by rays of light falling on them. He alludes, in passing, to the great changes which occur in the tension of glaucomatous eyes even within a few hours. (Graefe's 'Archiv f. Opht.,' 18 B., Abt. 1.)

*Smoked glass preferable to blue glass in order to protect the eye from too strong sunlight.*—Dr. Dobrowolski advocates the use of smoked glass instead of glass of a blue colour in order to relieve the eye from the glare of strong light, because the smoked glass diminishes the intensity of all the colours; whereas the blue glass leaves the eye exposed to the blue rays without any protection. The blue would relieve an eye sensitive to yellow and green, or exposed to yellow and green rays, but does not affect the red, blue, and violet rays. The smoked glass, on the contrary, diminishes the intensity of colour of all the rays. Any one accustomed to wear blue glasses cannot leave them off easily. ('Annales d'Oculistique,' Sept., Oct. 1873, p. 156.)

*Inoculation in cases of pannus.*—A full notice of a paper by Dr. Brière (in the 'Bull. de Thér. Méd. Chir.,' 1873, 15 Sept.) will be found in the 'Annales d'Oculistique,' Sept, Oct. 1873, p. 215).

*Leptothrix in the upper canaliculus.*—Dr. Gruening records a case ('Arch. of Ophth. and Otol.,' vol. iii, No. 1, p. 17).

*New instruments.*—Dr. Warlomont figures and describes ('Annales d'Oculistique,' Nov., Dec. 1873).

(1) *A cystotome with concealed barb.* After the introduction of the cystotome the barb is made to project from one side by pressure on a small lever-handle.

(2) *A concealed hook* for use in iridodialysis. The hook is pushed out, when required, by the same mechanism as in the former instrument.

(3) *A needle-hook for tearing false membranes, &c., in the pupil.* This was suggested in connection with a plan advocated by Mr. Streatfeild at the London Ophth. Congress, for tearing through membrane, &c., without exercising traction on other parts. He introduces two needle-hooks from opposite sides of the cornea through the same opening in the membrane and then separates them. Dr. Wecker introduces a stop-needle on one side, and then his needle-hook on the other. The hollow of the hook-part of the needle, when introduced, is filled by another sharp point which is pushed down inside it. When about to cut, this latter is drawn back a little by a lever-handle, and the hook is available for use.

*An improved lid-forceps*, especially for the operation of entropion. Dr. H. Knapp has devised a modification of the clamp-forceps in general use. He makes the ring surround the margin of the plate, instead of resting on it. When the ring is screwed down it is larger than the plate, and there is a narrow interval between the ring and the plate, so that the eyelid is bent and compressed between them. The same clamp is made available for both eyes. It gives a larger space in which to operate ('Arch. of Ophth. and Otol.,' vol. iii, No. 1, p. 25). At p. 220 of No. 2, vol. iii, Dr. Knapp notes a further improvement, and at p. 221 Dr. Argyll Robertson describes forceps which he has been using for some time, which are essentially similar to those of Dr. Knapp.

Dr. Martin reports from Dr. Wecker's clinique on—

1. *Trephining the cornea in partial staphyloma of the cornea.*—The object of this operation is to allow of the slow formation of a cicatricial tissue which will tend to diminish the curvature of the cornea. Dr. Wecker's trephine is figured.

2. In *complete cicatricial leucoma* of the cornea trephining is restored to in order to create a corneal fistula. Two cases are noted in which some benefit resulted.

3. *Neurotomy.*—The cases in which the sheath of the optic nerve had been incised in neuritis were too far advanced to allow of any amelioration. No harm resulted. A neurotome caché for the purpose is figured.

4. *Tattooing the cornea.*—Lately Dr. Wecker had adopted a plan resembling those recommended in England (Bader and Taylor). After having spread a thick layer of Chinese ink over the opacity, a number of punctures are made in it by means of an instrument consisting of four or five needles fastened together. (Figures are given.) The ink is washed off to see the result, and the process repeated till it is satisfactory. The ink is finally left in contact for a quarter of an hour, the speculum being retained. The conjunctiva should not be pricked, or else black spots will result there also. A good black colour ought to result after two tattooings.

5. *On the treatment of ectropion by Snellen's sutures.*

6. *Operation for entropion of the upper eyelid by Snellen's method* (with figures).

7. *On grafting in the treatment of ectropion.*

8. *Forceps-scissors.*

('Annales d'Oculistique,' Mars, Avril, 1873, pp. 101—15.)

*Tattooing of the cornea.*—In an examination as to the most useful colours with which to tattoo the cornea, made by means of experiments on rabbits and frogs, Mr. Archer came to the conclusion that ultramarine, sienna, and Chinese ink are good; indigo and Berlin blue fairly good; but that gamboge is not in any case to be used, as it causes great irritation and a speedy desquamation of the tattooed part of the cornea. Further experiments were made by means of ultramarine as to what befell the pigment-particles in the tattooed cornea. When the pigment had been introduced some time, and after the needle punctures were closed, and the continuity of the tissues had been again restored, the ultramarine particles were found removed from the original punctures, lying singly or in groups, distributed amongst the epithelium or the fibrous tissue. The pigment-granules were found within the protoplasm of the epithelial cells, but never within the epithelial nucleus. The "wandering cells" of the cornea gradually accumulated round the tattooed spot, and carried off particles of the ultramarine. On the twenty-fifth day from tattooing the blue could be seen lying amongst the fibrous tissue at the spot where the punctures were made in "sharply bounded small spaces, whose dimensions not seldom considerably surpassed those of corneal corpuscles." The total amount of pigment was lessened to the half, and solitary "wandering cells" were only found, none of which contained pigment. After this time the mass of pigment in the cornea was not noticeably diminished. (Graefe's 'Arch. f. Ophth.,' xx, Abth. i.)

*Notes on Ophthalmological and Otological Subjects made during a Journey through Europe.* By H. Knapp ('Archives of Ophth. and Otol.,' ii, 2, p. 153).—These notes are very interesting and embrace a variety of subjects.

*Report on the Transactions of the German Ophthalmological Congress held at Heidelberg*, 1871.—An interesting report by Dr. Knapp will be found, in English, in the 'Archives of Ophth. and Otol.,' ii, 2, pp. 194—218.

*The posterior lymph-passages of the eye.*—Dr. Julius Michel gives an account of the results of injections which he has made, accompanied by illustrations of the microscopic appearances, &c. He sums up to the effect that the sub-vaginal space communicates with the supra-vaginal space by means of slit-like gaps in the outer nerve-sheath and with the perichoroidal space by means of similar gaps in the sclerotic. The latter communicates by means of the perivascular spaces around the venæ vorticosæ with Tenon's space; so that portions of injection which have passed, on the one hand, through the openings in the optic sheath, and, on the other hand, through those in the sclerotic, meet together in Tenon's space, or in the supra-vaginal space immediately connected with it. These spaces are all, since the researches of Schwalbe, to be regarded as lymph-spaces. The demonstration of the fact that the

slits in the outer nerve-sheath and in the sclerotic, as described, represent means of communication between these spaces, and are lined with endothelial plates, justifies the opinion that they are to be regarded as serving for the passage of the lymph. The causes of certain forms of disease of the eye may be explained by the above facts, if the outflow from the lymph passages and spaces of the eye into the reservoir of the sub-dural space be obstructed on the one hand, and, on the other, if the communication of the spaces with one another be partly interfered with. Such affections, for instance, as the complication of certain forms of neuritis with choroiditis may be so explained. Possibly also the origin of myopia may be explained by the above facts in such cases as Kugel has noted. He observed myopia develop acutely after meningitis, and attributed the lengthening of the eyeball to the inability of the sclerotic to withstand the ordinary ocular pressure owing to changes which had taken place in it. (Graefe's 'Archif f. Ophth.,' 18 B., Abth. 1, p. 127.)

*The action of muscarin on the accommodation and the pupil.*—Drs. Krenchel and Mülder give the results of experiments made in the physiological laboratory at Utrecht on the action of muscarin on the accommodation and the pupil. They fully support the assertions of Schmiedeberg and Koppe that muscarin causes a spasm of the accommodation, which shows itself as a quickly increasing myopia, and disappears in from one to two and a half hours. This spasm of the accommodation begins after the application of the muscarin to the conjunctival sac in from five to ten minutes, and reaches its maximum in from fifteen to thirty minutes. The action upon the pupil is not uniform in proportion to the accommodative spasm, the contraction being great in some and small in others. Its entrance was somewhat later than the nearing of the far point, but increased regularly, and was at its maximum when the accommodative spasm had subsided, and only disappeared in from three to twenty-four hours. He therefore thinks that these two actions are independent of each other. In further proof of this, by using atropine and muscarin together in certain proportions, he could produce spasm of the accommodation with a dilated pupil. The pupil so acted upon by muscarin Dr. Krenchel has always found to act under the influence of light, which negatives the hypothesis of a spasmodic condition of the antagonistic muscles. He found in opposition to Schmiedeberg and Koppe's statements that the relaxation of the spasm of accommodation lasted nearly double the time that the production did, and that he could not entirely abolish accommodation. In these two respects he finds muscarin and Calabar bean to agree. But the two differ in their action in that while Calabar bean acts most easily on the pupil, and only by greater doses on the accommodation, muscarin acts most easily on the refraction, and with more difficulty on the pupil; and also that while Calabar bean causes in the first place an exalted capability of action, and only by stronger doses a true spasm of the ciliary muscle, the muscarin produces first the spasm and afterwards the exalted capability. As a supplement to the above paper Dr. Krenchel gives the results of some experiments undertaken at Prof. Donders' invitation to test the statements given out last year

by Rossbach and Fröhlich, which were in opposition to former authorities on the action of atropine and Calabar bean, but which are denied in every particular by Dr. Krenchel. (Graefe's 'Arch. f. Ophth.,' Bd. xx, Abth. i, p. 135.)

*Choroiditis and its influence on vision.*—Dr. Otto Bergmeister, in a paper in Graefe's 'Archiv,' Bd. xx, Abth. ii, p. 95—122, passes in review the different methods of grouping cases of choroiditis adopted by different authors, and their views as to prognosis. It is the general opinion that the ophthalmoscopic appearances afford very little guide as to prognosis. The author, from his extensive experience in Prof. Arlt's Clinic, has arrived, he believes, at certain conclusions, which may be of some value in reference to prognosis. He quotes Schweigger to the effect that the ophthalmoscopic appearances and the diagnosis depend in great measure on the condition of the pigment layer. He describes the changes met with in recent choroiditis without exudation under the term *choroiditis disseminata simplex*. In these cases we commonly meet with local defects of the field of vision, but great general defect of vision may rapidly set in owing to the changes affecting the neighbourhood of the disc, or their spreading forwards to the ciliary region. Good vision exists only when the changes are limited to a zone between the equator and the posterior pole of the eye. If changes make their appearance near the disc we find one of two series of ophthalmoscopic changes; first, congestion of the disc either in the form of a deeper colouring shown through a lightish grey cloudiness of the tissue of the well-defined disc, or in the form of a greyish-red streaking of the disc with haze of its margins. This participation of the disc is produced by the share taken by the perineural wreath of vessels in the circulation in it. The quicker the hyperæmia disappears, the more rapidly will the vision improve; the longer it lasts, the more doubtful is the prognosis, because atrophy will gradually result, entailing permanent loss of vision. Secondly, we find opacities in the posterior part of the vitreous, perhaps coming into view in front of the disc. In many cases the vitreous remains perfectly clear, and the author thinks one chief reason for its becoming affected, at any rate in the posterior part, depends on the locality of the disc being affected with coexistent disturbance in the circulation in the region of the perineural wreath of vessels. In another series of cases, fresh patches of choroiditis make their appearance more peripherally, and thus encroach on the ciliary region. As results, we have opacity of the anterior part of the vitreous, chiefly in the form of very small points, best seen by feeble illumination Dots are also found at the posterior part of the lens. The disease may extend to the iris, leading to deposits on Descemet's membrane, synechiæ and exudation into the pupil. This occurs more especially in connection with syphilis. In contradistinction to the simple disseminate choroiditis we have *choroiditis circumscripta exsudativa* with scotomata, chromatopsia, metamorphopsia, sensation of pressure on the eye, and pain felt on pressure. *Choroiditis disseminata exsudativa* occurs in the form of one (or more) extensively diffused patch (diffuse exudative syphilitic choroido-retinitis). Such a patch may appear in the course of another form of choroiditis,

or the disease may commence as such. The prognosis is very doubtful. A fourth form of choroiditis spreads from the periphery in small distinct patches towards the centre, and is associated with pigmentation of the retina, and a progressive diminution of field, with preservation of central vision. Finally, atrophy of the disc dependent on progressive atrophy of the nerve fibres of the retina is observed. Inability to see in a dull light is a not unfrequent symptom. The author sums up as follows:—1. The atrophic form of choroiditis usually met with may run its course without great defect of sight so long as the ophthalmoscope reveals changes confined to a zone between the equator and the posterior pole. The prognosis depends chiefly on the way in which the disease spreads, that is, where fresh patches make their appearance. When they encroach on the neighbourhood of the disc, vision is affected by the disturbances set up in the circulation in the optic nerve and by opacities in the posterior part of the vitreous. If the disease spreads forwards, vision is then interfered with by anterior vitreous opacities. 2. Circumscribed exudations lying on the surface of the choroid produce local scotomata, photopsia, chromopsia, and metamorphopsia. The degree of the defect of vision essentially depends on the part affected; for instance, the yellow spot. 3. Vision will be most severely affected when changes in the outer retinal layers are added to persistent changes in the choroid, or where the whole uveal tract is affected. Atrophy of the optic nerve follows. If exudation persists at the posterior pole of the eye, central vision is destroyed. 4. Pigmentation of the retina, in consequence of choroidal atrophy progressing from the equator to the posterior pole of the eye, causes diminution of field and hemeralopia; whilst central vision may remain, even though the nerve may show signs of atrophy at an early period. (Graefe's 'Archiv,' Bd. xx, Abth. ii, pp. 95—122.)

# REPORT

ON

# MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN.

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## I. GYNÆCOLOGY, EMBRACING THE PHYSIOLOGY AND PATHOLOGY OF THE NON-PREGNANT STATE.

### *Anomalies of Structure.*

J. Nicolaysen reports the following case of hæmatometra depending upon a double uterus, one of the cavities not communicating with the vagina ('Nord. Med. Ark.,' t, vi, 1st partie). A patient aged 21 had suffered for three years from pain in the right side of the hypogastrium, especially at the period; she was regular, though a little too profuse. For the same time she had noticed a swelling on the right side of the hypogastrium; this was slowly increasing. On examination an elastic movable tumour, three to four inches long and one broad, was found in the right iliac region; lower down and more to the middle line another tumour filling the pelvis and rising half an inch above the symphysis. This was firmer, but less movable; both were painful on pressure. On vaginal examination, no trace of the vaginal portion of the uterus could be detected. A tumour of the ovary adherent to Douglas' pouch, and pushing the uterus backwards, was diagnosed. A puncture was made with the aspirator into the most prominent part of the swelling, through the vagina, a small quantity of thick brown fluid was drawn off. Four days after the operation peritonitis set in and the patient died on the ninth day. At the autopsy the uterus was found quite divided into two, each half corresponded with a Fallopian tube and an ovary, but the right cavity was not in communication with the vagina; owing to this it had retained the menstrual blood and become distended. There were also found abcesses in the left kidney, which was enlarged; the right kidney was absent, the supra-renal capsules were properly developed on the two sides.

Dr. A. Bidder gives a detailed account ('Berl. Klinische Wochenschr.,' No. 46, 1874) of a case of hæmatometra in a uterus bicornis with complete absence of the vagina. The patient, aged 17½, had for the last year suffered from pains recurring at four weeks' interval, but there had been no discharge. On examining the patient no vaginal orifice existed; from the urethral orifice to the posterior commissure there was only smooth mucous membrane with a slight depression in the middle. A finger in the rectum felt distinctly a catheter in the bladder, and apparently only separated by loose cellular tissue. About three inches from the anus the finger came upon a large elastic body, the size of a fist; this was in the site of the uterus and felt distinctly by bimanual examination; it was movable, nothing like a cervix could be felt. As the diagnosis was not doubtful, the question was as to the closure or absence of the vagina. The forefinger was placed in the depression and worked in the direction of the axis of the pelvis with a boring movement separating the walls of the vagina; in places this was easily done; there was slight hæmorrhage, at a depth of about 3½ inches the tumour was reached; as no os could be felt, a small hole was made by the finger nail and a trocar pushed in; a thick, tenacious treacly fluid escaped; the opening was then widened by the finger; The fluid was allowed to run away, and no pressure, &c., was made on the uterus, then the vagina was syringed out with tepid water. The patient did well, except a slight febrile attack on the eighth day. Menstruation occurred normally shortly after. Later on the patient was examined under chloroform, the uterus was found large, soft and elastic; to the left and below the fundus a thick projection was felt, about one and a half inches long and three quarters of an inch broad, which sprang directly from the uterine substance; it was probably the other horn of a uterus bicornis. By the rectum no vaginal portion could be detected, but from the lower part of the uterus a small cord-like vagina was recognised. The finger only entered the vagina for an inch, above this a contraction through which the sound passed. Attempts were made to dilate this part of the vagina by laminaria tents. When seen six months after the uterine condition was much the same; the vagina was still contracting, but the girl menstruated normally. The case is interesting both from its nature and the successful result; these cases are somewhat rare; it is not certain that the projection from the uterus was another horn, though exceedingly probable.

Prof. Braun-Fernwald, writing on the arrested development of the uterus, vagina, and vestibulum, says—

1. That the absence of the uterus in fully grown women is generally combined with deficiency of the entire vagina, but the vestibulum, mammæ and mons veneris are perfectly developed. The genitals terminate in a cul-de-sac at the hymen; the vestibulum is a pouch about the size of a thimble; the menstrual molimen is absent, it is impossible to make a vagina in this affection.

2. The arrest of the growth of the uterus is either congenital or acquired. The vagina ends in a cul-de-sac or communicates with a rudimentary uterus, the shape of which varies. The external genitals are usually regular in form; the ovaries are normal or abnormal. The

sterility present is always incurable. The uterus fœtalis seu infantilis results from an interruption in the continuous development of the uterus; its cervix may be from one to two inches long; the body is always very short, about the size of a hazel-nut, with very thin walls; the vaginal portion of the cervix may be a mere rudiment or very short, with a small external but a wide internal os; the vagina is narrowed, the tubes well formed, the ovaries are absent or small, the Graafian vesicles absent, or the contained ova do not come to maturity. Menstruation is deficient or seldom, irregular, scanty, and more or less painful. From the thinness of the walls this has been called uterus membranaceus, or when it occurs in young persons after delivery, atrophia uteri præcox. At puberty the growth of the uterus is often left behind, without retaining its infantile form; it is altogether small —uterus parvus—both the body and cervix. The breasts, vagina, and ovaries are perfectly developed; menstruation is not always absent; conception may take place and delivery at full time.

3. Uterus duplex et unicornis.—This malformation depends upon abnormal changes in Müller's ducts during embryonic life, from which the vagina, uterus, and Fallopian tubes are formed. (*a*) Uterus duplex separatus seu uterus didelphys (Kussmaul, Klob) is an arrest of development, so that on each side an uterus unicornis exists tolerably separate from each other, with an imperfectly developed vagina, or, if present, bipartite. This is met with only in children incapable of a separate existence; it results from the non-fusion of the dual components of the organ. An uterus bicornis or bilocularis, results if the fusion of the middle section of Müller's ducts, does not go on in the normal way; there are either two distinct uterine cavities reaching from the fundus to the os, or there are two or more cavities formed by a membranous partition. Each cavity has its one Fallopian tube and ovary. The extreme degree of uterus bicornis, that is, where the two horns with a double vaginal portion open into a single or a double vagina, is rarely met with. Kussmaul recognises two forms of uterus bicornis; the uterus bicornis duplex, where the separation into two halves by a conjoint partition is complete, and the uterus bicornis infra simplex, seu semi-duplex, seu unicollis, where the separation is incomplete. If one horn of an uterus bicornis duplex be impregnated it enlarges, and its walls thicken as in the gravid uterus; the impregnated horn rises up into the abdominal cavity, and both in their proportional growth retain the same relative position as when unimpregnated. In five cases of pregnancy observed by Prof. Braun-Fernwald, occurring in uterus bicornis, there was never twins, all the children were born alive and the puerperium was natural. In uterus bicornis unicollis, pregnancy and birth proceed naturally.

(*c*) The unhorned partite uterus, uterus bilocularis (Rokitansky), uterus septus (Kussmaul), is where the cavity of an externally single uterus is divided by a septum springing from the normal fundus reaching downwards to a greater or less extent. When this septum is complete throughout the whole length of the uterus Kussmaul calls it uterus septus duplex; when incomplete, uterus subseptus. The vagina may also be divided by a continuation of the uterine septum, but usually the

vagina is single, conception, gestation and parturition are possible, and are usually attended with no particular disturbance. (*d*) The uterus unicornis consists of one horn only; the other, the arrested horn, being attached to it, or absent. It is a long cylindrical, spindle-shaped body curved to its corresponding side and terminating in the Fallopian tube, to which a normal ovary is attached; the cervix is very small. Pregnancy may occur and terminate normally. The accessory horn may be impregnated through the migration of an ovum, if so it ends in rupture. Hæmatometra occurs when one of the mouths of an uterus duplex is imperforate and menstruation goes on in that half; and hæmatocolpos occurs in bipartite vagina if atresia of one of the openings is present. Hæmatometra in uterus bicornis, with a rudimentary horn, has not as yet been described either anatomically or in the living subject. The lowest grade at which defective blending of Müller's ducts can arise are the membranous bands occasionally met with in the dome of the vagina, more rarely in the cervix alone, in the middle of the vagina under the name of a duplicate hymen, and more frequently as hymen bifenestratus. Atresia vulvæ seu labialis consists either in adhesion of the posterior two thirds of the labia majora or of a genuine lengthening of the perinæum. It is as a rule very difficult to diagnose the above-named condition of the uterus, at times it is impossible. ('Wiener. Medez. Wochenschr.,' Sept. 5 and 12, 1874, and 'Lond. Med. Record,' Nov. 18, 1874.)

Prof. Breisky relates in detail ('Arch. für Gynäk.,' vi, i, 1873) a case of hydrometra lateralis as the result of congenital closure of a rudimentary vagina with double uterus.

Dr. Otto Braus reports a case of pyometra and pyokolpos the result of atresia of a rudimentary vagina in uterus bicornis ('Berl. Klin. Wochnschr.,' xi, 11, 1874).

Dr. Mann exhibited to the Obstetrical Society of New York a specimen of an uterus bicornis duplex and vagina septa, from an otherwise entirely well-formed nine months' fœtus. The cornua of the uterus are very distinct and widely separated. The depression in the centre of the fundus is well marked, and the whole uterine, cervical and vaginal canal divided into two equal halves by a firm septum.

Dr. Moldenhauer gives in detail ('Archiv für Gynäk.,' vii, 1, 1874) a case of pregnancy in a one-horned uterus. A woman, æt. 29, was delivered of her first child, the placenta did not follow; attempts were made to remove it without success; the patient died of diffused peritonitis. At the autopsy the bladder and vagina were found normal; the uterus was enlarged; there was no trace of the uterine appendage on the right side; the upper part of the uterus was expanded into a sac, in which was an aperture, the cause of the peritonitis. The uterine appendages on the left side showed traces of old inflammation; the tube was bent and its canal impermeable; the ovary was covered with small cysts, and no recent corpus luteum was seen; on the right side the ligament of the ovary and the tube were wanting, but in a fold of the peritoneum, near the external os, a well-developed ovary was found with a recent corpus luteum, and nearer the middle line a quite solid body which, on microscopical examination, was found to be a rudimentary uterine

horn. The case must be looked upon as one of pregnancy in an uterus unicornis with arrested development of the other horn with external wandering of the ovum and rupture of the uterine wall in the second half of pregnancy.

A case of complete uterus bicornis, the septum extending into the one common cervix, is reported by Dr. Sell. Pregnancy occurred in the right horn. ('Trans. Obst. Soc.,' 1873.)

M. Perrault reports an extraordinary case of double uterus in a woman, æt. 20, who was in the eighth month of pregnancy. After a fœtus was delivered, the abdomen remained large and the placenta not coming away, the hand was passed in, when another cervix was found dilated to about 2½ inches; passing in the hand a fœtus was felt and delivered, after this the neck was still felt as before, and it appeared there were two uteri, one superimposed upon the other. The woman died of puerperal fever; there was no autopsy permitted. ('Lyon Médical,' 1873.)

Dr. Matthews Duncan communicates the following cases of malformation of the uterus ('Edinb. Obst. Soc.,' Jan. 1874). 1. Uterus unicornis dexter found at the post-mortem examination of a woman, æt. 60; the left kidney, left ureter, and left renal artery were absent as well as the left half of the uterus; the uterus was lying in the pelvis strongly inclined towards the right side. No trace of left broad ligament, left Fallopian tube, left ovary, or left angle of the uterus. 2. Uterus subseptus unicorporeus; this condition was found on removing the organs from a woman aged 48, who died of cancer of the ovary. She had had three children.

Dr. Hauff gives ('Wurtemb. Corr. Bl.,' xliii, 5, 1873) an account of the autopsy of a woman aged 51; there was no trace even of a rudimentary uterus or of the ovaries; the vagina ended in a cul-de-sac. The patient had consulted the author thirty years before because she had never menstruated. She was then a well-made handsome woman, with a well-shaped pelvis; the external genitals were undeveloped and without hair, the labia as small as in a girl of 10; the clitoris was of normal size and was capable of erection, a hymen was present, the patient had sexual desires; by rectal and vesical examination the uterus was found absent. Two sisters of the patient had each a daughter aged 25 and 23, in whom the same malformation was found, absence of the uterus; these two had never had any sexual desire.

The following interesting and rare case of congenital absence of the bladder occurred in the practice of Mons. Fleury, of Clermont. A young girl, who had menstruated regularly for two years, applied for incontinence of urine, which had become almost insupportable during the last year. The external genitals and the upper parts of the thighs were the seat of a severe erythema. A catheter only entered 1½ inch, and no urine came away; this gave great pain. The next day she was feverish and had pains in the hypogastrium, peritonitis came on, and she died within eight days. At the autopsy, the coils of intestine were found covered with pus. There was no trace of a bladder. The ureters were normal and terminated in the cul-de-sac of the urethra; the urethra was 1½ inch long. The patient had had incontinence from birth ('Gaz. Hebd.,' No. 6, 1874).

Dr. Foucard records a case of imperforate hymeneal membrane in 'Abeille Médicale,' March, 1873. The patient suffered from retention of urine for 24 hours; on using the catheter a large tumour was discovered projecting between the labia, the bladder was emptied and the membrane incised, and a large quantity of inodorous blood flowed out. The patient married, and on Dr. Foucard being called in for the first accouchement, he found that the lips of the incision had closed: labour was effected without any new incision and without rupture of the vulva.

Another case is recorded by Dr. Pirotan in the 'Gazette des Hôpitaux.' A woman, aged 21, had never menstruated; she had been treated by tonics and iron for four years in the hope of inducing menstruation, but without effect. Each month she suffered from intense pain in the abdomen, groins, and genital organs; micturition was difficult; the abdomen was hard, swollen, and painful, especially in the right iliac fossa; there existed in that situation a rounded, circumscribed painful tumour, which flattened under pressure. At last she was examined during the monthly attack. Between the labia there was a prominent bulging tumour; the abdomen was distended and the tumour reaching to above the umbilicus, was fluctuating and well defined; the bladder was distended, the uterus bulging to the right. The hymen was incised, giving exit to at least six litres of blood; the swelling disappeared, and the patient speedily recovered, and has since regularly menstruated. ('Lancet,' July, 1873.)

Dr. Lloyd Roberts relates ('Brit. Med. Journ.,' Oct. 1873) a case of imperforate hymen with retained menstrual fluid; the patient was aged 20, and had never menstruated: the abdomen was gradually enlarging, and a tumour was felt as high as the umbilicus; under chloroform a trocar was passed through the hymen and eight ounces of thick fluid was withdrawn; during the next 14 days about twenty ounces more exuded. Some feverish symptoms and abdominal pains set in, but subsided; subsequently the opening was enlarged, the patient did well.

### *Menstruation.*

Dr. J. Williams, in a paper read before the Royal Society on the structure of the mucous membrane of the uterus and its periodical changes, concludes from observations made on the uteri of nine women who had died in different stages of the monthly period, that menstruation appears essentially to consist not in a congestion or a species of erection, but in growth and rapid decay of the mucous membrane. The menstrual discharge consists chiefly of blood and of the *débris* of the mucous membrane of the body of the uterus. The source of the hæmorrhage is the vessels of the body of the uterus. The mucous membrane having undergone fatty degeneration, blood becomes extravasated into its substance; then the membrane undergoes rapid disintegration, and is entirely carried away with the menstrual discharge. A new mucous membrane is then developed by proliferation of the inner layer of the uterine wall, the muscular tissue producing fusiform cells, and the groups of round cells enclosed in the meshes of

the muscular bundles produced the columnar epithelium of the glands. ('Proceed. Roy. Soc.,' 1874, vol. xxii, p. 297.)

Dr. Hagemann contributes a paper on the mucous membrane of the uterus ('Archiv f. Gynäk.,' v, 2, 1873.)

*Connection between menstruation and smallpox.*—Dr. Otto Obermeier, after careful investigation of 104 cases of smallpox in women, has come to the following conclusions: 1. Menstruation generally coincides with the first period of smallpox (in three fourths of the cases), and comes on generally at the time of the eruption. 2. The disorders of menstruation are not so frequent as is generally stated (only one fourth of the cases); the supervention of the disease, especially the eruptive period, hastens the appearance of the menses, whilst the retardation is exceptional, as also their absence and suppression: it is very seldom that smallpox brings on real hæmorrhage. 3. It is most common to observe a coincidence of normal regular menstruation with the first period of smallpox (in more than one half of the cases), and the fact probably depends upon some physiological modification of the period of incubation. 4. The pathological influence of smallpox on menstruation depends less on febrile irritation, as suggested by Perroud, than on the morbid process itself (eruption). The menstrual flux which comes on after the disease is generally weak and retarded. ('Virchow's Arch.,' 1, 1873, and 'Lancet,' March, 1873.)

Dr. Leopold gives an account of the lymphatics of the normal non-pregnant uterus ('Arch. f. Gynäk.,' vi, 1). The following are the conclusions at which he has arrived:

1. *The mucous membrane.*—1. The mucous membrane is made up of a framework of the finest connective tissue, the bundles of which are covered by endothelium; the spaces between these bundles are the lymph-spaces. 2. The membrane of the uterine glands consists, in the deeper layers, of a fine layer of a delicate connective tissue, the bundles of which externally are covered by endothelium, but superficially it is formed only by a sheath made up of cell-plates. 3. The blood-vessels, from the finest capillaries, have a number of fine epithelial sheaths increasing with their size. 4. The framework of connective tissue is directly connected with both kinds of sheaths by means of fine twigs. 5. The glands and blood vessels, therefore, pass through the lymph-spaces, from which they are separated only by their sheaths formed from the framework of connective tissue. 6. At the limits of the muscular layer the lymph spaces extend a little into the funnel-shaped hollows between two muscular bundles, and gradually become narrowed into the intermuscular lymph vessels and spaces.

2. *The muscular layer.*—In the muscular layer both of animals and the human subject, there are lymph-vessels and lymph-spaces. The walls of both are made up of fine intermuscular connective tissue. The former are lined by fine endothelial lamellæ, which here and there have openings and gaps; the latter are lined by delicate cell-plates. 2. In animals the characteristic networks of the lymphatic vessels are arranged parallel to the long axis of the two muscular layers; they therefore cross one another. Those of the inner muscular layer run into the lymph spaces of the mucous membrane, whilst those of the outer layer are

connected with those of the subserous layer. The large canals, furnished with valves, which collect the lymph and are spread as a network over the horns of the uterus, lie between the two muscular layers, and receive all the lymph-vessels from both sides, externally those of the subserous and first muscular layer, internally those of the second muscular layer and the mucous membrane. 3. In the uterus of the human subject the lymph-vessels are more complicated, on account of the arrangement of the muscular fibres. They are most abundant in the external layers and in the other layers around the larger vessels, and are connected, as in animals, with the vessels of the subserous layer, but with those of the mucous layer mostly by the lymph-spaces. They unite together in the external layer, especially on the sides of the uterus, to form large canals, which very probably have valves. 4. The lymph-spaces, both in man and in animals, surround the smaller bundles of a larger muscular bundle, and pass into the lymph-vessels. In animals these spaces are individually connected with the canals in the serous and mucous layers, but in the human subject they are directly connected with those of the mucous layer. 5. The larger blood-vessels lie for the most part close to the collecting lymph-canals, the other lymph-vessels are accompanied by blood-vessels, for a certain distance, and the lymph-spaces quite regularly have small vessels running through them.

3. *The serous coat.*—1. Only lymph-vessels are found under the serous covering. They lie in the subserous connective tissue, and form large and characteristic networks. 2. They are much less numerous than the subserous blood-vessels, which lie over them, but they are from eight to ten times stronger. 3. They have large ampullæ, points of union, contractions, valves, and swelling, and give off branches to the deeper parts, either vertically or at an angle. 4. In the pig, rabbit, and sheep, the networks have mostly a direction corresponding to that of the long axis of the horns; in the human subject they cover the anterior and posterior walls in irregular, large, or small groups; they have especially at the insertion of the Fallopian tube large ampullæ, and then pass on as an extended net upon the tube.

Dr. Kundrat publishes ('Medizinische Jahrbücher,' iii, 1873) an account of certain researches he has made upon the anatomical condition of the mucous membrane before, during, and after menstruation. He has examined the mucous membrane of the human uterus in the interval of menstruation, immediately before the hæmorrhage, during the hæmorrhage, and again after it had ceased. The mucous membrane of the human uterus in the "state of rest" has certain peculiarities. There is no submucous tissue and the mucosa comes into immediate union with the muscular layer. Its matrix is peculiarly rich in round or spindle-shaped cells. The glands are lined with ciliated epithelium. At the monthly period of uterine activity, the mucous membrane is swollen, thick, loose and almost diffluent, covered with a whitish or bloody mucus, finely injected at spots, and in many cases uniformly coloured of a deep red. This condition of the uterus probably precedes the occurrence of the discharge of the ovum and the menstrual flow by several days, so that the uterus is prepared for the reception of the ovum a certain time before the rupture of the Graafian vesicle. Microscopical

examinations during the menstrual period show that the stroma of the vessels as well as the epithelium of the glands and surface are dull and filled with fat-granules. Kundrat believes that the fatty change causes the hæmorrhage, the fatty change is more abundant at the surface of the mucosa where the bleeding takes place, so that Kundrat believes the following is the anatomical sequence at the monthly periods of uterine activity; swelling of the mucosa, fatty change in the cells and vessels, vascular rupture and hæmorrhage. With the blood much altered epithelium is thrown off, but not the whole mucosa. Physiologically considered the swelling of the mucosa must be looked upon as the preparation for the reception of the ovum, and the type of the impregnated uterus is seen in the active uterus when the mucosa is swollen, and menstruation has not yet commenced. If the bleeding comes on it is a sign that the ovum has perished and that the mucosa is returning to a state of rest. So we must conclude that a developing ovum or growing embryo belongs not to a menstrual period just passed, but to one just prevented by fecundation.

Dr. Cohnstein gives the following results as to the duration of menstruation in 400 women in whom the menopause had occurred some years previously. 1. The average duration of menstruation was 31 years. 2. The menopause occurred gradually in 76 per cent., suddenly in 24. 3. It occurred in those who had menstruated early (under 13 years), about 3 years later than in those in whom the catamenia appeared late (after 17). Pluriparæ show the highest percentage of duration of menstruation 29-32 years. Abortion hastens the appearance of the menopause. Lactation increases the duration of menstruation.

The catamenial function is of longest duration in women who menstruate early, are married, have more than three children, suckle them and cease child-bearing between the ages of 38 and 44 ('Deutsche Klinik,' 1873, No. 3).

Dr. Slavjansky, in a communication to the Obstetrical Society of Leipzig, gives the result of the examination of the sexual organs of 12 non-pregnant women who died of cholera. The mucous membrane of the uterus had undergone the most change; it was in a state of acute hæmorrhagic inflammation, with not unfrequently partial destruction or even complete throwing off of the membrane. This explains the hæmorrhage which occurs without assuming a pseudo-menstruation.

Dr. Slavjansky also examined the organs of two women after abortion, one in the fourth and the other in the sixth month of pregnancy, the mucous membrane forming the decidua was most affected, and the fœtal membranes were involved ('Wiener Medizin. Wochenschr.,' Feb. 1873, 'Brit. Med. Journ., March,' 1873).

Dr. Churchill in a paper on amenorrhœa from congenital malformation ('Dub. Obst. Soc.,' May, 1873) says that it is often difficult to make an accurate diagnosis, though the question of relief depends upon this. The means of forming a diagnosis are either physiological or physical; the first deals with the presence of the menstrual molimen and of sexual gratification, &c. By the second, we ascertain the presence or absence of the different organs of generation; for this the *bimanual* examination was most useful. Dr. Churchill related 12 cases as illustra-

tions; in some the ovaries were either not present, or were in an infant state, undeveloped, or not acting; in others, the fault was in the absence of the uterus, or congenital closure of the os uteri (one case). In most cases nothing can be done as regards treatment if the uterus is undeveloped. Sir J. G. Simpson recommended a galvanic pessary. The practical question was whether the patient should marry. Dr. Churchill thinks not; or, if so, the other party should be informed of the defect.

Mr. Lawson Tait writes on menstrual irregularities and their relation to diseases of the nervous system ('Obst. Journ.,' May, 1873). Speaking of uterine epilepsy, he says it may be induced by the normal functional changes at the two extremes of menstrual life, and may occur from accidental disturbance between these two periods. The most common variety is the moliminal; it is almost invariably due to a deficient development of the uterus and its appendages. The climacteric form is the most unfavorable in its progress. The third class may be subdivided into those due to uterine atrophy from some cerebral or general cause and those due to super-involution, as the direct result of pregnancy.

Dr. Aveling writes on nidation in the human subject ('Obst. Journ.,' July, 1874). He first speaks of nidation or the periodical development of the mucous membrane lining the interior of the uterus, and its connection with ovulation, impregnation, and lactation; then on denidation and menstruation, and on the disorders of nidation.

Dr. Berthier writes on menstrual neuroses ('Archives de Tocologie,' April, 1874). After speaking of the more or less palpable connections and relations existing between the different organs of the body, he insists, relating facts in support of it, on the incontestable sympathy which unites the brain and the uterus; he then recalls some of the well-known cases where a fibrous tumour of the uterus, an anteverted or congested uterus, has given rise to facial neuralgia, epileptic attacks, &c.—accidents explained by reflex action. He then runs over the principal points of the phenomena of physiological menstruation, and shows how this may produce neuroses. He relates 35 observations of simple neuroses—cephalalgia, migraine, facial neuralgia, blindness, hallucinations, dyspnœa, gastralgia, hyperæsthesia, &c., which all appear to prove either an obstacle to the menstrual excretion, a trouble in the excretion, or an excess. From another series of observations, 51 in number, which treat of convulsive neuroses, convulsion, chorea, hysteria, catalepsy, epilepsy, &c., the author concludes that the arrest of the menstrual flow gives rise nearly as often as its excess to convulsive neuroses. From a third group, consisting of 29 observations of cerebral affections connected with menstrual troubles, cerebral and spinal congestions, apoplexy, paraplegia, hemiplegia, general paralysis, febrile delirium, meningitis, &c., Dr. Berthier concludes that menstrual troubles, principlly suppression, may give rise indirectly or directly to fluxionary accidents capable of producing febrile delirium with or without epilepsy, and the different forms of paralysis, and may end in death. Then the author treats of insanities connected with derangement of the menstrual flow.

*Diseases of the Uterus Proper.*

Dr. Blanchard ('Thèse,' Paris, 1873), on cauterization of the uterine cavity, considers that diseased conditions of the mucous membrane of the cavity of the uterus play an important part in the affections of that organ, and that this state must be met by astringents, caustic injections, &c. He lays down the indications and contra-indications of the method of treatment, and relates 6 cases of chronic metritis so cured; he concludes with the following:—1. That a pencil of nitrate of silver and potash introduced into the uterine cavity is completely inoffensive. 2. It may be left there, if needful to profoundly modify the mucous membrane. 3. Such treatment should not be employed in any inflammatory condition of the uterine appendages, &c. 4. From its application a cure has been obtained in cases of abundant leucorrhœa, chronic metritis of a hæmorrhagic kind, and occlusion of the internal os with retention of secretion. It relieves in cases of metritis depending upon fibroma or deviations of the uterus.

Dr. Lombe Atthill ('Obst. Journ.,' June, 1873) writes on the use of nitric acid in the treatment of uterine disease. He gives the details of a number of cases in which he has found permanent benefit from the application of the fumic nitric acid to the mucous membrane of the cavity of the uterus. In some of these cases the mucous membrane was extremely vascular and had a rough granular feel to the fingers; in others it was applied for the stopping of hæmorrhage after the removal of intra-uterine tumours; in a third set of cases intramural fibroid growths, he has found the application both prevented the profuse hæmorrhage, and also lessened or removed the pain. In applying the nitric acid, it is well that the cervix be first dilated, then Dr. Atthill passes his intra-uterine speculum, which keeps the canal open, swabs out the uterus, and then applies a ball of cotton wool steeped in the fumic nitric acid If the cervix has not been previously dilated, Dr. Atthill uses a canula of platinum the size of No. 8 catheter, which is passed into the cervix and through this a plug of cotton wool with the acid is passed, thus protecting the cervix from injury.

Dr. Barnes writes upon the various methods of applying remedies to the internal surface of the uterus. After referring to the many cases of death from intra-uterine injection and the probable causation, he says that it is well to restrict their use within the narrowest limits; for himself he rarely uses them, except in cases of urgent danger from menorrhagia. Instead of injections, the same substance should be applied by swabbing, solid, or in the form of ointment. Referring to the intra-uterine injection of the solution of perchloride of iron in post-partum hæmorrhage, Dr. Barnes only recommends it in extreme cases and as a last resource; it both seals up the mouths of the vessels by the coagula formed, and aids to close the vessels by its constringing power upon the inner surface of the uterus. The patient should be laid on the back, and the uterus firmly grasped by an assistant during the injection. The right strength is 1 in 10 water. ('Brit. Med. Journ.,' January, 1873).

Dr. Braxton Hicks writes on abrasion of the os and cervix uteri

('Obst. Journ.,' May, 1873). He deals especially with the reflex symptoms associated with this condition, pointing out their extensive character external to the uterus, and then examines the effect of irritation of nerves on the uterus itself. In many cases marked relief is afforded by the application of nitrate of silver to the denuded spot, in the same way and for the same reason as when a syphilitic fissure of the tongue is touched with nitrate of silver. The author refers to the bearing which these points have on so-called chronic inflammation of the uterus. As the result of the abrasion of the os uteri we find enlargement of the vessels, great sensitiveness and all the symptoms generally said to attend chronic metritis, and yet all these symptoms disappear rapidly on removing the exciting cause.

Dr. Lombe Atthill contributes a paper to the Dublin Obstetrical, Society on endo-metritis. After speaking of its frequency, symptoms and the physical signs, he gives the treatment: first local blood-letting; this is best performed by puncturing the cervical tissue with a long-handled lancet; secondly, local application to the diseased mucous membrane lining the body of the uterus. This is best done by passing a stilette armed with a layer of cotton wool saturated with nitric acid, acid nitrate of mercury, &c. To do this thoroughly, and to prevent the fluid being pressed out of the cotton wool as its passes through the cervix, it is necessary to first dilate the cervix by sea-tangle tents. To guard the cervix still further, Dr. Atthill employs an intra-uterine speculum, made of vulcanite, something like an aural speculum, which is expanded by means of a screw working through a long handle. No bad results have followed this treatment ('Dublin Journal of Med. Science,' 1873).

Dr. Matthews Duncan writes on the orifices of the unimpregnated uterus, and their surgical treatment ('Brit. Med. Journ.,' March, 1873). He has never seen or heard of an acquired stricture of the orifices of the uterus or the canal of the cervix; congenital stricture of the external os is very rare. Both ora uteri, when in a state of health, are easily permeated by the ordinary uterine sound; the same is true in disease, except in rare cases of acquired or congenital stricture. Both ora uteri in health are easily dilated. In spasmodic dysmenorrhœa, the passage of the smallest sound gives great pain, identical with that of the spasmodic dysmenorrhœa; the dilatation of the internal os causes great pain, and must be done slowly; when dilated it does not recontract to its pristine state for years. It is possible that in spasmodic dysmenorrhœa there may be a morbid condition of the process of healthy menstruation, whether passing the bounds of health or not. The treatment for this condition is dilatation of the internal os, and to do this Dr. Duncan thinks the best and safest method is the passing of graduated bougies of increasing sizes daily.

Dr. More Madden, in a paper read before the Obst. Soc. of Dublin, Feb. 1873, on chronic inflammation of the cervix uteri, says that this affection is the most common of the diseases peculiar to women; of 6500 cases of out-patients, one tenth had this complaint, and the proportion in private practice was the same. After discussing whether uterine diseases are on the increase, &c., Dr. Madden describes the

physical sign of ulceration of the cervex uteri, and says the upper part of the vagina is generally involved, the ulcers are superficial, and commence just within the os. He then inquires into the causes of chronic endometritis, including the influence diathesis has upon the complaint, then he gives the treatment; local treatment by styptics and caustics is mentioned, but particular stress is laid upon the combining constitutional with local treatment.

Dr. E. J. Tilt writes on the prognosis of uterine inflammatory diseases ('Obst. Journal,' 1873). It is governed by the following conditions:—1, constitution; 2, age, social condition and domestic circumstances; 3, length of disease; 4, nature of the disease and part of the womb affected. After speaking of the prognosis of uterine inflammation generally, he treats at greater length the prognosis of endometritis, and refers to the ending of several cases of the kind previously published.

Dr. Leblond writes on the employment of the actual cautery in uterine diseases ('Annales de Gynæcologie,' Jan. 1874). The disease for the treatment of which the actual cautery is best indicated is chronic metritis, whether accompanied or not by ulceration. In chronic metritis the cauterization should be deep or superficial,—deep in the first period, or that of congestion; superficial in the second, or period of anæmia. In cancer the actual cautery is rarely useful, on the contrary it may become very dangerous. Its use is contra-indicated in acute inflammation of the uterine parenchyma and in all peri-uterine inflammations. Its use is nearly always innocuous, provided sufficient care is taken as to when it should be used.

Dr. C. H. Routh, in a paper on the use of the intra-uterine stem in uterine diseases, advocates first of all the combating of all inflammatory and congestive symptoms. If it was necessary to enlarge the cervical canal by tents, disinfected sea-tangle tents should be used, and he objected to forcible and immediate dilatation by instruments. He then states the diseases for which the intra-uterine stem should be employed, and the necessary conditions for the formation of an intra-uterine stem and their different varieties ('Obst. Soc. Trans.,' 1874).

Olshausen writes on the incision of the cervix uteri (Sammlung Klinischer Vortrage, No. 67, 1874). This is suitably employed where dysmenorrhœa is dependent upon the small size of the external opening, or where sterility exists from the same cause. For the operation he prefers using Marion Sim's knife; to secure a good result the incision should be made high enough up in the cervix, and the vaginal portion should be cut through. To prevent the too rapid healing, the best way is to break down the adhesions with the finger for the first two days, and then to pass the sound so as to break down adhesions where the finger cannot reach. Incision of the cervix may be usefully performed in severe cases of uterine catarrh, when through a too narrow orifice a hindrance exists to the outflow of the secretion; it also permits intra-uterine medication to be more readily applied.

*On intra-uterine medication in the treatment of uterine catarrh.*—Dr. Playfair in two lectures on this subject ('Lancet,' 1873, i) recommends the swabbing out of the interior of the uterine cavity by means

of soft flexible probes covered with a thin layer of cotton-wool. He has found it best to employ a solution consisting of pure carbolic acid and of glycerine (equal parts). In his hands he has had good results even in the most confirmed cases.

Dr. Ellenger writes on immediate dilatation of the cervical canal ('Archiv f. Gynäk.,' v, 2, 1873); he gives in detail an account of the various methods employed for dilating the cervix, and then describes a new instrument by which he says rapid dilatation can be accomplished.

Dr. Hagemann writes ('Archiv f. Gynäk.,' v, 2, 1873) on the shape of the cavity of the uterus. He has taken casts by injecting into uteri of different ages and conditions, paraffine and a metallic compound.

Dr. Louis Mayer relates four cases of disturbance of motion in connection with pathological conditions of the female sexual organs ('Beiträge zur Geburtsk. und Gynäk.,' ii, 2). These pareses and reflex paralyses were removed, after appropriate treatment had been applied to the uterus; in the cases of retroflexion, the reposition of the uterus by the sound at once enabled the patients to walk.

*Displacements of the Uterus.*

Dr. John Williams ('Lancet,' Aug. 1873) writes on the physiological changes in the position of the healthy unimpregnated uterus, and points out that from the manner of its attachments the uterus must necessarily move in obedience to the changes which take place in the volume of the neighbouring organs—the rectum and the bladder. After speaking of the position of the bladder in its emptied and full state, and of the connections of the uterus with it and the rectum through the vagina, he proceeds to fix the limits of the antero-posterior movements of the uterus, as well as its elevation and depression. There are four extreme positions which the uterus can normally assume—the lowest, the foremost, the highest, and the hindermost. The first is met with when both the bladder and the rectum are emptied the uterus is then low down, and the body of the uterus rests on the empty rectum on the lower part of the sacrum and the coccyx: the position is one of retroversion, but not accompanied by flexion. The second is met with when the rectum is fully distended; the uterus is pushed forwards, and the whole length of the organ rests on the bladder and the anterior wall of the vagina, the position is one of complete anteversion without flexion. The third, the highest position, is met with when both the rectum and the bladder are fully distended; the organ is then slightly curved forwards. The fourth position, the hindermost, is met with when the rectum is emptied and the bladder is fully distended; the uterus is then pushed the furthest from the pubes and is felt far back and high up; it is in a position of retroversion. From these extremes all other intermediate positions may be deduced.

Dr. John Williams writes on the mechanism of the production of certain displacements of the uterus ('Lancet,' Aug. 1873). He considers the causation of the antero-posterior displacements—anteflexion, anteversion, retroflexion, retroversion. He then points out in what way the flexion of such an organ as the uterus can be brought about; then

he reviews the various forces which can act on the uterus: as gravitation (not a powerful force) the force generated by the distending rectum, that from the distending bladder, the force produced by the abdominal muscle, the force of the diaphragm: the force of inertia from jolts and falls, &c. He then describes the various displacements and the conditions which bring them about, and concludes by saying that anteflexion is possible only when the bladder and rectum are both full enough to raise the fundus of the uterus above and in front of an imaginary plane continuous with the anterior surface of the spinal column. Anteversion is only possible when the rectum is full and the bladder empty, except when the uterus is considerably elongated, in which case it is the permanent condition. The so-called "complete anteversion" is only possible when the anterior wall of the vagina is of unusual length. Retroversion is only a step towards retroflexion. Both conditions may be produced when the rectum is empty, and that is a necessary condition for their production.

Dr. Hermann Beigel discusses ('Wiener Medizin. Wochenschr, No. 12, 1873) the influence of changes in the position of the uterus in producing sterility; he first shows from statistics the frequency of displacements in sterile women, and then that the influence of displacements is mechanical by causing closure of the canal, and then figures a form of intra-uterine stem which he has found useful in such cases.

Dr. Griffiths writes ('Brit. Med. Journ.,' Dec. 1873) on the causes and pathology of the various acquired malpositions of the uterus.

Dr. Ludwig Joseph, writing on flexions of the uterus ('Beiträge zur Geburtshulfe und Gynäk.,' xi, 2, 1873), after reviewing the opinions of various authors, shows that anteflexion, either congenital or acquired, occurs most frequently in virgins or in those who have aborted; in these latter being the most frequent cause of the so-called 'habitual abortion,' produced generally by peritoneal adhesions to the posterior wall of the bladder, or by pressure from above, as in obstinate constipation, large collection of fæces, tumours, &c. He sums up his conclusions as follows: 1. Rokitansky's theory of the normal structure of the uterus and the origin of flexions is doubtful, as the anatomical substratum upon which it is founded does not exist. So, also, the acceptation by Virchow, that the mucous membrane of the uterus possesses a submucous stratum, is erroneous. 2. Virchow's views on the occurrence of flexions acquire more support from the anatomical facts observed. 3. Anteflexions, when not congenital, occurring from defective development of the anterior uterine wall, are produced mainly by mechanical forces, which are situated either external to the uterus, or take place through parametritic cicatricial contractions, whilst retroflexions are produced generally through relaxation of the uterine tissue in consequence of defective puerperal involution ('Med. Times and Gaz.,' June, 1873).

Dr. Thomas Savage, writing on flexions of the multiparous uterus, speaks of the good results he has seen follow the use of an intra-uterine stem; he gives several cases ('Obst. Journ.,' Nov. 1873).

Dr. John Williams read a paper before the Obstetrical Society of

London, Oct. 1874, on the relation between congestion of the uterus and flexion of the organ. Different and opposite views are held upon the subject. The one—that congestion is the primary morbid condition of the uterus, and that flexion follows as its consequence; the other—that flexion is the primary morbid state, and that congestion is brought about by it. He thought a third view might be adopted—that the two conditions bear no relation of cause and effect to one another, though they frequently coexist in the same organ. He arrives at the following conclusions:—There is no evidence to show that a physiologically increased flow of blood through the uterus occurring periodically, or that erections of the uterus, favour or cause chronic congestion of the organ. Exposure to cold during a menstrual period is not a common cause of congestion of the uterus. Simple congestion is a rare affection of the virgin uterus. Flexion or flexion accompanied by congestion is not an uncommon affection of the organ in its virgin state. The effects of congestion are at first slight enlargement through distension of its vessels, then slight softening from exudation into its tissue, and, lastly, enlargement of the organ and induration of its tissue. The increase in weight in the body of the virgin uterus arising directly from congestion is probably equal to about the weight of two drachms of blood; the effect of this small weight cannot produce flexion of the organ. The condition of the uterus from the time of impregnation to the fourth month of gestation militates against the view that congestion is the cause of flexion. The effects of flexion are occlusion of its canal, leading to dilatation of its cavity, and congestion and thickening of its walls. The increased flow of blood through the flexed uterus just before menstruation does not diminish but increases the flexion. Simple flexion causes congestion and hypertrophy of the cervix by compressing the venous plexus around the insertion of the vagina into the uterus. In retroflexion, the body of the uterus and the veins of the broad ligament may be grasped by the sacro-uterine ligaments, and thus become greatly congested.

*Uterine Tumours.*

Dr. A. Meadows, in three lectures on fibroid tumours of the uterus ('Lancet,' i, 1873), says that of all the organic diseases of the uterus this is the most common. He first points out the nature and character of these growths and their varieties, and then speaks of the symptoms, which may be classified under three chief heads, viz. disordered menstruation; irregular discharges, either hæmorrhage or mucus; and pain. He then points out how the symptoms vary according to the variety of the growth. The various affections with which fibroid tumour may be confounded are then passed in review, and the differential diagnosis pointed out. In the second lecture the treatment—medical and surgical—is dealt with. Reference is made to various forms of degeneration—the calcareous, suppurative, and the fatty, also to fibro-cystic disease. The uselessness of drugs for the removal of the growth is dwelt upon; then the drugs and treatment for the arrest of hæmorrhage are spoken of; the value of subcutaneous injection of ergotine is alluded to; and then the division of the cervix, which Dr. Meadows has not found of much advantage. Remedies for the relief of

pain are spoken of next, and then the methods by which a submucous fibroid tumour can be removed. The enucleation of the interstitial variety is fully dwelt upon: an operation which the lecturer much recommends, and one which has been very successful in his hands: he describes fully the method of operation.

Mr. W. Ross Jordan gives two cases of large fibroid tumour of the uterus successfully treated by enucleation. ('Lancet,' March, 1873.)

Mr. John Scott ('Lancet,' Dec. 1873,) gives a detailed account of the removal of a large submucous fibroid of the uterus by enucleation and torsion. The tumour was ovoid, weighing 1 lb. 6 oz., and attached from the os to the fundus of the uterus on the anterior wall.

M. Boinet ('Gaz. Hebd.' 1873) thinks that gastrotomy should not be practised for fibroid tumours of the uterus unless they are pedunculated, and that to remove the uterus in part or altogether is a most dangerous procedure.

Mr. Lawson Tait read a paper before the Roy. Med. & Chir. Soc. (Oct. 1874), giving an account of a successful operation for the removal of a large fibro-myoma from the fundus uteri. The patient, æt. 34, had suffered from a large abdominal tumour of rather rapid growth for 5 years. There was profuse menstruation and frequent symptoms of pressure upon the pelvic organs. The tumour was central, and reached two inches above the umbilicus, was completely solid and moveable with the uterus. It was removed by an operation, the steps of which being exactly the same as for ovariotomy, the tumour was found to spring from the whole of the fundus uteri, and the part of the organ above the internal os was removed with it. Recovery was rapid and uninterrupted, and the clamp came away on the eighth day. The tumour weighed eleven pounds, and was an ordinary fibro-myoma. ('Obst. Journal,' Dec. 1874.)

Dr. More Madden, in a paper read before the Obst. Society of Dublin ('Dub. Med. Journ.,' 1873) on the diagnosis and treatment of uterine polypi, after giving the symptoms and the statistics of a number of cases, speaks of the treatment, and considers that more may be done by medical treatment, especially in those cases where patients refuse to submit to operative treatment, or where the operation, if performed, would imperil life; he advises the long-continued use of iodine, and the bromide of ammonium and potassium.

Dr. Hildebrandt writes ('Beiträge zur Gynäk. und Geburtsk.,' iii, 2, 1874) on the treatment of uterine fibromas and myomas by the subcutaneous injection of ergotine. He gives a number of cases in which it has been tried both successfully and unsuccessfully. He thinks the following are the most favorable conditions for this treatment:—1. When the tumour is a fibroma, elastic and rich in muscular fibres. 2. When it is submucous. 3. When the walls of the uterus are healthy and capable of contracting, not thinned through being expanded, nor thickened by exudation, and when no peri- or para-metritis is present.

Dr. Lombe Atthill communicates ('Dublin Hosp. Gaz.,' 1874) a case of fibrous tumour of the anterior labium uteri successfully removed by the galvanic knife. The patient made a slow but good recovery.

Dr. Kunert writes on sarcoma of the uterus ('Archiv f. Gynäk.,' vi, 1, 1874). He gives the completed history of six cases which he had watched till the fatal end, and gives a *résumé* of the chief points in the pathology of the affection. Sarcoma of the uterus has not been known to occur before puberty; the progress of the disease is very rapid, and always terminates fatally. From the moment a tumour is discovered presenting the character of a sarcoma the advance is rapid; the alteration in the general condition of the patient most marked. In fourteen out of thirty cases death followed within a year after the tumour was recognised; in one after two years, in three after three to six years. There is a unique case of cure reported by Winkel. The diagnosis is generally easy. It is easily distinguished from carcinoma of the cervix when *débris* of the tumour is found in the discharge. Carcinoma of the body of the uterus is exceedingly rare, and the consistence of the growth is different. Hæmorrhage and pain occur early, and marked immobility of the uterus is later. It is difficult to distinguish sarcoma from myoma. The prognosis is bad, only a little more favorable than in carcinoma. With regard to treatment, as preventive, every myoma should be removed at once. When the sarcomatous growth is recognised it should at once be removed. If the tumour is circumscribed its base should be cut through with the knife, scissors, or écraseur. If the growth is diffused it should be taken away with the curette, scoop, finger-nail, &c. Bleeding is best stopped by plugs steeped in the Liq. Ferri Perchloridi. In cases where it is impossible to operate fair results are obtained from the repeated injection of a solution of carbolic acid, perchloride of iron, tincture of iodine, caustic potash, or the actual cautery.

*Partial or complete Removal of the Uterus by Gastrotomy.*

J. Pean and Urdy have written on this subject. M. Pean has nine times, between 1869 and 1872, performed the operation for the removal of a fibroid tumour; seven of these were successful, or 78 per cent. The operation has been performed 44 times in all, with 14 recoveries, or 31·82 per cent. They conclude that the extirpation of fibrous tumours of the uterus does not give more unfavorable statistics than that of adherent cysts of the ovaries. The operation may be advised either for fibro-cystic tumours of the uterus or for the interstitial fibroids. The steps of the operation are similar to those in ovariotomy. If there is a thin pedicle it should be treated as the pedicle in ovarian cysts, but if there are adhesions, and the uterus has to be cut through near the vagina, the ligature must be employed.

Dr. Meadows gives a detailed account of the successful enucleation of a large fibroid tumour embedded completely in the uterine walls of a patient aged 42, who had become very anæmic through continued and profuse menstruation ('Obst. Journ.,' April, 1873).

Dr. Marion Sims writes on intra-uterine fibroids ('New York Med. Journ.,' April, 1874). He relates cases in which he successfully removed large intra-uterine fibroids. The following principles guide in this operation:—1. Let the cervical canal be freely opened. 2. The tumour must be freed from the restraint of its investing capsule. When the

capsule is incised, we expect the tumour to come slowly down, and dilate gradually the cervix. The enucleation cannot be attempted till the cervix is sufficiently dilated to allow the tumour to pass through it. The exact procedure gone through is then detailed, and a description given of several instruments which Dr. Sims has found useful in these cases.

Spiegelberg writes on the diagnosis of cystic myomata of the uterus and their intraperitoneal enucleation, and describes a new method of operation ('Arch. f. Gynäk.,' vi, 3, 1874). A patient aged 28, who was supposed to be suffering from ovarian disease, was operated upon. The ovaries were found unconnected with the tumour, which sprang from the posterior aspect of the uterus from about one inch below the fundus to the insertion of the vagina, and reaching more than four inches above the umbilicus; it was covered by the uterine peritoneum and the posterior layers of the broad ligaments. On puncturing it was found to be a cystic tumour of the uterus; a bucket half full of dark yellow fluid, which coagulated at once and completely, was removed; the growth was then drawn out, ligatured, and cut off with the knife. As hæmorrhage continued, the remaining portion in the uterine walls was enucleated, leaving a deep hollow, the size of the fist. This large cavity was closed by eighteen silk sutures passed through the peritoneal surface, and the hæmorrhage was arrested. The sutures were carried out of the abdominal wound, and a drainage tube passed through the retro-uterine pouch into the vagina; the abdominal wound was then closed. The patient died suddenly on the 16th day, most probably from pulmonary embolism; no autopsy was permitted. The diagnosis of fibro-cystic tumour of the uterus by physical examination alone is almost impossible. They are generally taken for ovarian tumours, and their true nature is only discovered when ovariotomy is performed. The exploratory puncture is the only certain diagnostic test, as the character of the fluid, its rapid and complete coagulation, reveals its nature. Spiegelberg calls this operation "enucleation," and bringing together with suture of the peritoneal covering of the cyst, and thinks it more favorable than the removing of a portion or the whole of the uterus. The author speaks very favorably of Sims' system of vaginal drainage in ovariotomy.

### *Uterine Cancer.*

Prof. Karl Schroeder ('Sitz. Ber. der Physic, Med. Soc. zu Erlangen,' 1873) speaks of the advantage of applying an alcoholic solution of bromine (1 in 5) to cancerous disease of the uterus; he first removes as much of the mass as is possible by scissors, the ecraseur &c., and then applies the actual cautery, pressing it deeply; when the eschar has come off, plugs of cotton-wool dipped in the alcoholic solution are pressed against the diseased part.

Dr. Routh read a paper before the British Medical Association, 1873, on the treatment of uterine cancer by gastric juice, and his attention was directed to this mode by two cases published in Italy. He first removes, when practicable, as much as possible of the growth by scoop, écraseur, cautery, caustic, &c., and then dresses the raw surface with a piece of lint steeped in gastric juice; over this is placed a

piece of oil-silk or gutta-percha, and the two are kept in position by a plug of cotton wool; the dressing should be changed twice a day; a red healthy granulating surface soon appears. Dr. Routh does not say this cures in all cases of cancer, but he has seen many much improved and some perfectly healed. He gives two cases in detail as illustrations.

Spiegelberg communicates ('Archiv f. Gynäk.,' vi, 1,) a case of primary and isolated carcinoma of the body of the uterus, occurring in a woman aged 49. She had suffered from hæmorrhage for 12 months, and had had severe pains. The body of the uterus was enlarged and retroflexed, the cervix elongated and poured out a copious puriform discharge. The cervical canal was dilated by sponge tents, and the finger passed in, which came upon a mass infiltrating the posterior wall; a quantity of enceplaloid débris was scraped off by the scoop; this was repeated a short time after. Shortly after the operation the woman became collapsed and died of peritonitis. At the autopsy the greater part of the posterior wall was destroyed; and on the anterior a funnel-shaped opening into the abdominal cavity.

Dr. T. Chambers in a paper read before the Brit. Med. Ass., 1873, gave the detailed account of a case of epithelioma of the body of the uterus. The cervix was dilated and the cavity was scraped out with Sims' curette, and then swabbed out with the compound tincture of iodine; the patient did well, and was in good health six months after.

Spiegelberg writes on amputation of the vaginal portion of the cervix uteri ('Archiv f. Gynäk.,' v, 111, 1873). He has arranged 60 cases in a tabular form; of these 53 have been under his care. He has employed different methods of operating—Simon's, Marion Sims', and Kuchenmeister's. The operation was performed for the following diseases:—For carcinoma, 22 times; for simple inflammatory hypertrophy, 7 times; for conical and elongated cervix (sterility) 5 times; for beaklike and alar-shaped cervix, 10 times. The knife or scissors were used 8 times; Sims' method, 6 times; the knife or scissors and sutures through each labia, 3 times; the écraseur, 4 times; the galvano-cautery, 39 times. Two of the cases ended fatally; one, a case of carcinoma, from opening up the abdominal cavity and secondary hæmorrhage, another from pelvic peritonitis and secondary hæmorrhage after the removal of a carcinomatous cervix by the galvano-cautery; in both these cases the uterus was forcibly drawn down. One died from shock, another from repeated hæmorrhages, and a third from septicæmia. The operation should always be performed in the natural position of the parts; 4 times the peritoneum was injured through the uterus being drawn down too much; this caution must be carefully observed in cases of carcinoma, or when the uterus is at all fixed. The operation is not a severe one when performed under favorable circumstances. If the knife or scissors is used, some form of suture should be used so as not to leave the wound uncovered. Sims' method should only be used when the cervix is close to the vulva, or can be drawn there without any risk. The galvano-cautery is to be preferred to the écraseur, as much care is required with the latter not to injure

neighbouring parts. The galvano-cautery should be used for carcinomatous cases: the knife for the elongated or hypertrophied cervix. The best position for the patient is the lithotomy position: the best time for operating is ten to fourteen days before the expected catamenia.

Dr. E. Martin writes on the etiology and treatment of uterine cancer ('Berliner Klinisch. Wochenschr.,' No. xxviii, &c., 1873). He says that numerous observations confirm the opinion that the first commencement of the new growth shows itself in the folds of the posterior vaginal cul-de-sac near the cervical portion as small knots and granulations which spread to the cervix. Dr. Marten does not agree with what has been said as to heredity; in 500 cases, in only 65 was it well pronounced. He does not agree with the statements that the unusually early appearance of the catamenia disposes to cancer, nor that those who have borne many children are especially liable to it. From the history of cases there is evidently some connection between infectious sexual diseases and cancroid affections. The treatment is radical and palliative; the first only avails in cases seen early where the part affected can be wholly removed; he then speaks of the several ways in which this may be done. Under the heading of palliative treatment the chief symptoms are spoken of, and the remedies which are serviceable for them are mentioned.

### *Diseases of the Ovary.*

Dr. Tilt in a paper on the diagnosis of subacute ovaritis ('Obst. Soc. Trans.,' 1873) says that the most frequent sexual diseases between 15 and 25 are subacute ovaritis and inflammation of the neck of the womb. When the disorders of menstruation resisted good hygienic and medical treatment, he believed they were generally due to subacute ovaritis and cervicitis. The symptoms of cervicitis were the habitual painless passing of a moderate amount of muco-purulent vaginal discharge, with habitual pain in the back: those of subacute ovaritis were constant dull pain deep in the ovarian region, much increased by firm pressure, and extending to the thigh and leg, mammary symptoms, disturbed menstruation and hysterical symptoms. The positive sign of subacute ovaritis was the finding of an ovoid, smooth, and slightly indented lump beside the womb, or in Douglas' pouch pressure on which caused an overpowering and sickening sensation of pain and debility. He then sketched the treatment most likely to cure the disease.

Dr. T. G. Thomas reported to the New York Obstetrical Society ('Amer. Journ.,' Feb. 1874) a case in which he had removed both ovaries as a cure for the intense and incessant nervous suffering attributable only to them: the patient did well.

Dr. Leopold writes on solid tumours of the ovary ('Archiv f. Gynäk.,' vi, 2, 1874). He has arranged 56 cases in a tabular form; 13 of these are published for the first time, of these a short account is given. Solid tumours of the ovary are rare; they are met with in the proportion of about 1·5 per cent. of all tumours of the ovary. Externally they retain somewhat the natural shape of the ovary, and thus are to be distinguished from fluid tumours, which have

an irregularly rounded form. Their consistence varies; they may be so soft as to give the suspicion of fluid, or even as hard as a stone. The thickness of the external coat varies much, and this is a point of some importance as regards the more or less rapid development of the tumours. The anatomical relations of these tumours are almost identical with those of the fluid. Histologically, solid tumours of the ovary may be fibrous, enchondroma, sarcoma, or carcinoma. The fibrous are simple or complex, fibro-myoma, fibro-sarcoma. Enchonadroma of the ovary is very rare. Sarcoma of the ovary is said to occur very rarely, the text-books scarcely mention them. Under the carcinomatous, he describes a new variety, "lymphangioma kystomatosum," it is characterized by the cystic formation, the dilatation of lymphatic vessels, and a proliferation of the stroma.

Dr. Kronid Slavjansky communicated to the Anatomical Society of Paris, December, 1873, a paper on glandular filaments found in the ovary of an adult woman. These filaments have been found hitherto in the human ovary only in the young, during intra-uterine life, or soon after birth; exceptionally they have been found in children of the age of four. There is no conclusive observation of their having been found after the age of seven. He gives a description of the filaments found; this recognition is of great interest from a pathological anatomical point of view, as bearing upon the development of cystic tumours of the ovary. Their origin is uncertain, unless they are due to the persistence of those which normally exist in the newly born ('Annales de Gynecologie,' Feb. 1874).

Dr. Benham writes on the value of the corpus luteum as a proof of impregnation ('Edin. Med. Journal,' Aug. 1873).

*Ovariotomy.*

Mr. Hulke gives an account of three cases of ovarian tumour on which he operated in Middlesex Hospital. In the first case, a large multilocular cyst, one of the cyst had ruptured three days before the operation; there was no sign of peritonitis, the clamp was used and the patient made a good recovery. The second, a proliferous ovarian cyst, also did well. The third case, a young woman aged 21, who had a rapidly increased compound cyst which had commenced with pregnancy; the operation was performed as in the other cases, but there were adhesions: the patient died twenty-four hours after the operation.

Dr. Marion Sims in an article on ovariotomy ('New York Medical Journ.,' 1873) thinks the death-rate is still too high, and that the great cause of death (septicæmia) is overlooked. He proposes to puncture the cul-de-sac of the vagina behind the cervix uteri, and to pass a tube of some sort into the peritoneal cavity to drain off any effusion which may take place in the cavity. It can do no harm and can be removed in a few days if no discharge comes. ('Brit. Med. Journ.,' Feb. 1873.)

Dr. Gilmore relates a case where he removed through the vagina an ovarian cyst the size of an orange; the incision was made through the posterior cul-de-sac; the woman was aged 48 and recovered ('Amer. Journ. of Med. Science,' Jan. 1874.)

Mr. Cullingworth gives an account of an ovarian cyst found in an infant newly born ('Obst. Journ.,' Oct. 1874.)

Mr. Spencer Wells relates a case of ovariotomy successful in a girl eight years old. The operation was performed as usual, the pedicle was long and tied with silk in two portions. The tied pedicle was allowed to fall back into the pelvis and the abdominal wound closed. The cyst contained 20 ozs. of fluid; the solid portion weighed 3 ozs.; in this solid portion there was a mass of bone covered with true skin from which grew a quantity of long, light hair. ('Brit. Med. Journ.' and 'Obst. Journ.,' April, 1874.)

Dr. Malins gives in detail a case of ovariotomy in a woman, æt. 29; she had twice been tapped during pregnancy; at the operation 2 years after there were extensive adhesions, and the woman died twenty hours after. ('Lancet,' Feb. 1874.)

Mr. Pridgin Teale relates a case of ovariotomy during acute suppuration of an ovarian cyst ('Lancet,' June, 1873). The patient was tapped and in the evening of the same day had a rigor. She rapidly got worse, and as death was threatening it was resolved to operate to remove the irritating cause. This was done; there was a large quantity of ascitic fluid, the result of peritonitis, and the cyst was full of fœtid gas and stinking fluid; the pedicle was tied with whipcord and returned into the abdominal cavity. The patient did well, and was up on the 17th day.

Prof. Humphreys reports two cases of ovariotomy under his care in which a drainage tube was passed from the peritoneal cavity through the vagina. The first, a widow aged 52, has had ovarian dropsy for 14 years and had been tapped 21 times. She measured five feet round the navel, and three feet from the ensiform cartilage to the pubes. At the operation the pedicle was long and the clamp was used; the cyst was adherent to the whole of the fore part of the abdominal wall; the adhesions were torn through with some difficulty. After tying two bleeding vessels in the pelvis and four on the abdominal walls, there was still oozing, and Marion Sims' precautionary plan was tried. A trocar with canula was pushed through the retro-uterine pouch into the vagina and a drainage tube introduced, and the ends, one from the vagina and the other from the lower part of the abdominal wound, tied together. For three days sero-sanguinolent fluid passed through the tube; the tube was removed on the 16th day, the clamp came away two days after; the patient recovered well. In the second case the patient was aged 62. The cyst was extensively adherent to the front of the abdominal walls and to the pelvis; the operation was effected with very great difficulty. The pedicle was long and the clamp was used; some vessels were tied with catgut ligature. As oozing continued, a drainage tube was passed through the recto-vaginal pouch as above. For two or three days bloody fluid passed through it; it was removed on the sixth day. The patient recovered without a bad symptom. (Mirror, 'Lancet,' Oct. 1873.)

Dr. A. Wernich writes on the prognosis of ovarian tumours complicating pregnancy ('Beiträge zur Geburts. und Gynäk.,' ii). He witnessed a case where a doubtful abdominal tumour, which had existed in an indolent manner before conception was complicated by pregnancy. Shortly before delivery violent pain was felt in the

tumour which had never before caused pain or inconvenience, rapid wasting set in, and death occurred three weeks after delivery. At the autopsy the tumour was found to be a medullary carcinoma of the ovary partly decomposed. From the history of the case it is more than probable that the malignant change in the tumour took place only after conception. Cruveilhier, Rokitansky, Spiegelberg, Waldeyer, Virchow, Spencer Wells, Braxton Hicks and others have called attention to the connection of colloid disease of the ovary with carcinoma, and reported cases in which ovarian tumours rapidly increased during pregnancy, or where found at the autopsy after delivery to be of cancerous nature. Martin, Winkel, L. Mayer, and Lucke have demonstrated the fact that pregnancy exercises a positive deleterious influence on hitherto benign tumours, not of the sexual organs only. He thinks that a multilocular ovarian tumour existing with pregnancy, as soon as the diagnosis is undoubted, should be removed, if possible, in the first months of gestation. Other remedial measures—puncture or induction of premature labour—are either useless or impracticable.

M. d'Olier, of Orleans, relates a case of twin pregnancy after ovariotomy. The patient fell pregnant three months after the operation, and was delivered at term of two fine boys; it was the fifth pregnancy. The abdominal walls did not suffer at all. ('Obst. Journ.,' 1873.)

Dr. Bantock in a paper on the pathology of certain (so called) unilocular ovarian tumours ('Obst. Soc. Trans.,' 1873) considers that there is no such thing as a true unilocular or unifollicular disease of the ovary. That these are always multiple at first, and that through the breaking down of the fibrous septa between the smaller cysts one large sac is formed; for it is the whole ovary that is enlarged, and several of the follicles become cystic. That a true unilocular cyst from the first is a cyst of the parovarium. Dr. West has laid down that such cysts are never larger than an orange, but Dr. Bantock considers that this has now been disproved by several cases.

Mr. Thomas Keith gives a detailed account ('Brit. Med. Journ.,' Dec. 1873) of a case of intestinal obstruction following ovariotomy. On the fifth day after the operation fluid was detected in Douglas' pouch; it rapidly increased, and was drawn off on the 9th and 10th days. By the falling-in of the roof of the hæmatocele a trap had been formed somewhere from folds of intestine adhering at angles, and the patient began to suffer from an accumulation of flatus; this at last became enormous, and the colon was punctured, and the escape of a large quantity of flatus relieved the patient greatly. This was repeated some days later, and the patient eventually did well.

Dr. E. Martin reports ('Berl. Klin. Wochenschr.,' June, 1874) the case of a young woman, aged 25, who had an ovarian tumour which was found to be adherent to the abdominal walls so as to preclude removal. It was tapped and emptied, and two elastic catheters passed in and the wound closed. Injections of carbolic acid into the cyst were made at first three times a day, then less frequently; the cyst became less, and in two days the catheters were removed. The patient was well five months after.

*Peri-uterine Condition.*

Dr. F. Weber, from an analysis of 23 cases of retro-uterine hæmatocele observed by him, concludes that the condition occurs most frequently in hard-worked young women disposed to anæmia. In 6 out of the 23 cases immoderate sexual indulgence—partly known, partly conjectured —was the inciting cause, in 4 the immediate cause of the disorder. The right ovary was the source of the hæmorrhage in 18 cases. The prognosis, as regards life, he considers very favorable, as none of his cases were fatal. This result he ascribes to the method of treatment—ice bladder, perchloride of iron internally, and avoidance of puncture. Ten cases were completely restored; in three the broken up extravasation burst into the rectum. ('Berlin Klin. Wochenschrift,' Nov. 1873, and 'Med. Times and Gaz.,' May 31, 1873.)

Dr. Mariotti writes ('Archiv. Gén. de Méd.,' 1873) on the pathogeny of retro-uterine hæmatocele.

Dr. Schroeder writes on the pathogeny of hæmatocele, retro- and ante-uterine ('Archiv f. Gynäk.,' v, 2, 1873). He first runs over the various theoretical considerations which determine the situation of an intraperitoneal effusion of blood. He then describes in detail a case of ante-uterine hæmatocele occurring in a woman who had tubal pregnancy. Through the rupture of the sac an intraperitoneal effusion of blood followed, which filled Douglas' pouch. Inflammation set in, which caused bands of adhesion to form between the rectum and the uterus. The hæmorrhage recurred, and the blood collected in the anterior cul-de-sac, and coagulated there. This condition was recognised by vaginal examination. The patient sank under another effusion of blood, and the condition was verified at the autopsy.

Dr. Fritsch writes on retro-uterine hæmatocele ('Saml. Klin. Vortrage,' No. 56, 1873), and gives a résumé of the subject. Hæmorrhage from the ovary is a frequent cause of hæmatocele; then tubal pregnancy and a congested condition of the Fallopian tubes; then hæmorrhage from the uterus by reflux; then peritoneal hæmorrhage. Hæmatocele is met with most frequently among the poor and those obliged to work; it occurs between 21 and 47 years of age; it is exceptionally met with in multiparæ. The author considers puncture dangerous, unless the tumour has softened and suppuration has begun.

Dr. A. Meadows read a paper on pelvic hæmatocele before the Harveian Society. He deals chiefly with the symptoms and treatment. He limits the term to those cases where the blood is effused into the peritoneal cavity, using "thrombus" for those cases where the blood is effused into the cellular tissue beneath the peritoneum. After speaking of the prominent symptoms he points out the differential diagnosis from pelvic cellulitis and pelvic peritonitis. He dwells upon the necessity for a minute and careful examination, not only for diagnosis, but in reference to treatment. With regard to treatment the first thing is to obtain coagulation of the effused blood, which is best secured by rest and opium, at times ice applied within and without is of use; the next is to obtain the removal of the effused blood. He advocates a more speedy resort to tapping than that generally advocated, as in

many cases where the effusion is large a tedious convalescence is avoided. In some cases tapping is quite uncalled for, but in those cases where the quantity of effused blood is so great as to fill the whole pelvis and press the uterus against the symphysis, rendering micturition and defecation difficult, the greatest relief is obtained from tapping, and it is the only available remedy. He thinks that between these severe and the other slighter cases there are cases where the recovery of health is often hastened by an early resort to tapping. As to the period for tapping, if the symptoms are urgent the sooner the better, though a few days should elapse after the occurrence of the hæmorrhage. When the symptoms are less urgent a month is not too long to wait. The puncture should be made through the rectum rather than through the vagina. The trocar should not be smaller than an ordinary silver female catheter, and should be pushed in from one to two inches ('Lancet,' ii, 1873).

A case of pelvic hæmatocele causing sudden death by the large quantity of blood poured out is reported ('Lancet,' Jan. 1874), occurring in a patient who was under treatment at the West Riding Asylum for puerperal mania. The patient was convalescent; when getting up from her bed she cried out in pain, and fell back pale and faint; she never rallied. The effusion was intra-peritoneal, and 25 oz. of blood were removed at the autopsy.

Dr. Dolbeau writes on retro-uterine hæmatocele ('Med. Times and Gaz.,' Feb. and March, 1873). He limits the term to a tumour formed by blood encysted in the peritoneal cavity of the pelvis. He thinks that under some influence such as that of a lymphangitis uteri or a disease of the ovary, a few drops of blood escape from the ovary on the Fallopian tube, and fall into the retro-uterine cul-de-sac; this sets up chronic pelvic peritonitis and adhesions form well supplied with blood. Then from some excitation of the parts rupture of one of the vessels occurs and further hæmorrhage. This is supported by the clinical fact that a patient has usually had pain and malaise at several menstrual epochs preceding. Virchow expressed this theory in 1862, but Dolbeau claims priority. He is opposed to surgical interference. The death-rate after puncture has been 25 per cent., on those not treated surgically 10 per cent. Puncture may be necessary when the tension is very great or when pus has formed, but Dr. Dolbeau thinks the latter never occurs if the patient is kept quiet and properly attended to.

Dr. Siredey writes on retro-uterine hæmatocele and its treatment ('Journal de Médecine et de Chirurgie,' March, 1874).

Prof. Spiegelberg, in a lecture on exudations around the female genital organs, after speaking of the history of the affections and the want of knowledge on the subject, attributes this ignorance to indistint anatomical ideas, and deficient knowledge of the relations of the serous layer to the genital organs and the pelvic connective tissue, and of the relation of the latter to the uterus and vagina. He then gives two drawings showing the relation of the peritoneum to the uterus, &c., and points out how two cavities are formed by the side of the uterus, one the pelvic peritoneal cavity, a part of the general peritoneal cavity, the other what has been called the sub-peritoneal cavity, which contains the so-called pelvic connective tissue. This latter is of great importance from its containing

blood-vessels, veins, lymphatics, and nerves. He then describes the intra-peritoneal effusions which may occur, the signs, and the diagnosis; then parametric inflammations (exudations, &c., into the pelvic connective tissue) are described, with their signs and diagnosis. Parametritis results from diseased states of the lower part of the internal genital organs, whether following labour or from injuries, such as violent jerks to the body, excessive coitus, cauterisation of the cervix, dilatation with sponge tents, incision or amputation of the cervix. Inflammation of the broad ligament is rather due to the extension of a parametritis, or it may arise from the tissue around the ovary. Pelvi-peritonitis accompanies affections of the body of the uterus and the Fallopian tubes, especially those of the internal layer ('Volkmann Klin. Vortrage,' No. 71).

*Diseases of the Vagina.*

Prof. Breisky writing on vaginismus and its treatment ('Schweiz. Corr. Bl.,' 5, 1873) says he has met with three forms. The first in childless women, otherwise healthy, who have no disease of the genital parts, but simply such an extreme sensibility of the parts that intercourse is impossible, the hymen is usually intact, and their husbands are not seldom impotent. In the second class, it is the result of local irritation, causing reflex spasms, as from fissures and small ulcerations of the hymen, constricting cicatrices, tumours, excrescences of the urethra, &c.; this form occurs in women who have had children. In the third form the affection is a part symptom of a general neurosis, hysteria, &c., and persists after any existing affection of the genital organs has been cured. As to treatment, in the third form no very energetic local treatment. No injections should be made till the entrance to the vagina has been dilated. In general the ordinary astringents, local application of cold, leeches, &c., do no good in severe cases. The removal of local causes should be arrived at. In the first form forcible dilatation should be practised and repeated two or three times.

Dr. Fehling reports ('Archiv für Gynäk.,' vi, 1) a case of rupture of the vagina and protrusion of the bowels, in a woman aged 63, who had suffered for thirty years from prolapsus uteri. No support could be worn during the last fifteen years, and the womb came down whenever she stood, walked or sat. She tried to replace it one day and used great force; she felt something give way, and immediately the intestine protruded. When seen several coils of the small intestine were protruding from the vulva; they could not be replaced. The patient died eleven hours after the accident from shock.

Mr. Churton related a case ('Obst. Soc. Trans.,' 1874) where a patient aged 60 had worn a Zwanck's pessary for two years. Recto-vaginal fistula resulted, the rent admitted two fingers; it closed up entirely without operative interference in two months.

Giraud writes on thrombus of the vulva and vagina in relation to pregnancy and labour. ('Thèse de Paris.')

Mr. Bailly contributes a paper on thrombus of the left labia and the corresponding wall of the vagina ('Archives de Tocologie,' Sept. 1874).

Dr. C. Routh writes on the etiology and treatment of carunculæ of

the urethra in the female, and gives a number of illustrative cases ('Obst. Journ.,' Dec. 1874).

Dr. Hime relates a case of suspected pregnancy in a girl aged 17. She had not menstruated for five months and the breasts presented well-marked mammary changes; she had suffered from incontinence of urine, which was becoming thick and offensive. A calculous mass was found in the bladder, which after much manœuvring was removed; it was the handle of a tooth brush, which the girl admitted having used for stoppage of her urine, when one day it was drawn into the bladder. ('Lancet,' Jan. 1874.)

## II. Pregnancy.

### *Physiology and Pathology of the Ovum.*

Dr. Kundrat writes on the anatomy of the gravid uterus and the fœtal envelopes ('Medizinische Jahrb.,' No. 2, 1873). The mucous membrane of the newly impregnated uterus is known as the decidua, and divided into the decidua vera, reflexa, and serotina. Its structure at first resembles the mucosa in or before menstruation, it is thickened, the glands are dilated, elongated and tortuous, and the intertubular cells are increased. The structure of the three portions are in all respects very similar. Inferiorly the vera suddenly ceases at a short distance from the cervix, and the cervix takes no part in the formation of the uterine cavity. Both the Fallopian tubes and their inferior openings are patent during the whole period of pregnancy. When the impregnated ovum reaches the inferior tubal opening its progress is not obstructed by an adhesion of the opposite mucous membrane, for none such exists. So that the ovum does not push before it, and invaginate a portion of the mucosa to form the decidua reflexa. This is clearly an outgrown and infolded portion of the decidua vera, for it possesses glands on its deep or ovular, as well as on its free surface. The ovum is retained at the fundus of the uterus by the swollen decidua. If the swelling is not so great, the ovum may travel down towards the cervix, and for this reason placenta prævia is more common in multiparæ. The enlargement of the uterus is at first out of proportion to the growth of the embryo, and a free cavity exists between the vera and the reflexa, which is filled with a somewhat opaque mucoid fluid. It is not till the fourth month that the embryo fills the uterine cavity. In the fifth month the opposite walls of the uterine cavity—that is, the decidua vera and the decidua reflexa have become partially adherent. The chorion villi were found to be fixed in the grooves of the serotina and on the sides of its elevations by a connective mass composed of mucus and degenerated epithelium. Other villi had buried themselves in the tissue of the serotina, and were so intimately connected that any attempt at separation ended in rupture; it is here the placenta is afterwards developed. As pregnancy proceeds the changes in the decidua are very considerable. The decidua reflexa becomes attenuated by pressure until reduced to a simple layer of the transparent envelopes of the embryo of which it forms the external part. The decidua vera and the decidua serotina remain as comparatively thick layers of tissue. As the termination of pregnancy approaches, the lining membranes of the uterus become whitish, dull, and of a pale

yellowish or even a yellowish-grey tint, and the process which the microscope shows to be one of fatty degeneration passes into the deeper layers. When parturition occurs a portion of the membranes is expelled with the fœtus, the superficial portion of the decidua vera is included; the deeper portion is retained, although this is not always so. During the first week post partum the discoloured lining membranes of the uterus may be found microscopically to present the characters of the decidua vera, but the sinuses are full of blood, the superficial cellular layer gone; the fatty degeneration extends to the deepest layers, and the tissue generally is infiltrated with round cells and blood. The lochial discharge consists of such cells and of products of disintegration. In the second week post partum the process has still further advanced, and the epithelium of the exposed sinuses is found to be proliferating. Restitution now begins and advances, and soon there is found on the surface of the muscular coat a fine layer of connective tissue covered by epithelium and furnished with young glands to represent the mucosa of the uterus, which is again at rest. ('Med. Times and Gaz.,' ii, 1873.)

Dr. Slavjansky, ('Archives de Physiol.,' 1874) has investigated some points in connection with the anatomy and physiology of the ovum in the human subject; the following are his conclusions: 1. the Graafian follicles are developed from the primordial follicles, and acquire a greater or less degree of maturity during the whole of life, from the first month after birth till about the age of forty. 2. The greater part of the follicles are not ripe, do not burst, and do not discharge their contents, but undergo atresia, presenting an almost complete analogy with that of the formation of the corpora lutea. 3. The development and maturation of the Graafian follicles are not produced periodically in a regular manner, and no connection exists between them and menstruation. 4. Menstruation constitutes a physiological phenomenon quite independent of the development and maturation of the follicles. 5. The rupture of follicles more or less mature always bears a certain relation to congestion of the genital organs, produced by any cause whatever. 6. There exists certain maladies (ague, poisonings, &c.) which produce atresia of the follicles at different periods of their development, after a parenchymatous inflammation of the ovary.

Mons. Delore, in a paper read before the Society of Biology ('Gazette Obstétricale,' 1874), on the maternal circulation in the placenta, says the mother's blood does circulate in the placenta; a fact demonstrated by Weber, Kolliker, Turner, Wincklen, and which his researches confirm. To the naked eye the placenta presents the following appearances: 1. Vascular orifices situated on the surface or at the circumference. The former are placed in the middle of the cotyledons, or on the level of the furrows or grooves between the cotyledons: these orifices end in channels which are lost in the villosities of the placenta. 2. The circular sinus varies in size; on opening it, it is found to be lined by a greyish membrane, with orifices communicating with the interior of the placenta. Fibrous columns are seen supporting the villosities and encircling these orifices, which are sometimes arranged in stages. 3. When the circular sinus is wanting, it is replaced by orifices in the form of a grating: their diameter ranges from 4 millim.

to 7 centim.: they consist of white fibrous tissue; where these orifices occur the placenta is occupied by whitish rugosities like lobes or prominent lines. 4. The lacunal sinuses are central or peripheral; the peripheral are few and join the circular sinus freely. The great central lacunæ are numerous, irregular, and winding. Columns and orifices like those in the circular sinus are visible. The framework of the placenta is formed by the connective tissue sent by the chorion round the fœtal vessels; in the interstices are inserted the cells of the decidua. The following facts show that the mother's blood bathes the villosities: 1. An injection of the circular sinus penetrates the whole of the placenta. 2. In still-born children when the blood of the placenta has lost its colouring, the placenta contains recent clots. 3. All sections show the villosities in contact with the corpuscles of the blood. 4. Vascular epithelium is found in the placental sinuses.

Dr. Ernest Frankel, writing on syphilitic disease of the placenta, ('Archiv für Gynäk.,' v, 1, 1873'), after giving the history of over twenty cases, summarises his observations thus: 1. The placenta may become affected by syphilis, and there are certain characteristic indications of this. 2. The syphilitic placenta occurs only in hereditary or congenital syphilis in the fœtus. 3. The seat of the disease varies according as the mother remains healthy, and the syphilitic virus is communicated directly from the father to the ovum by means of the semen; or according as the mother is diseased. In the former case the affected fœtal villi of the placenta degenerate through proliferation of cellular granulations, with consecutive obliteration and atrophy of the vessels, complicated frequently by marked proliferation and thickening of the epithelial covering of the villi. 4. In the latter case when the mother is syphilitic, the three following conditions may occur: (*a*) The mother through the act of impregnation is simultaneously affected with syphilis with the fœtus; diffused syphilis of the placental villi may then develope itself, though primary infection of the maternal parts—endometritis placentaris—is not excluded. (*b*) The mother becomes infected shortly after conception. The placenta may remain normal, or become diseased under the forms of endometritis placentaris gummosa, or, according to Virchow, in a more limited sense—endometritis decidualis. (*c*) The mother becomes infected only during the latter months of pregnancy (seventh to tenth month). It then generally happens that in case the father was healthy at the time of impregnation, the fœtus as well as the placenta is exempt from the above-described alterations. 5. The infection of the fœtus passing through the maternal passages is rare, and not yet proved conclusively.

Dr. Matthews Duncan, writing on the hæmorrhage that occurs during the continuance of pregnancy in cases of placenta prævia, says that it may be produced in various ways; hitherto it has been said to be produced only by the separation of the placenta; but he thinks that such hæmorrhages occur most frequently without any separation of the placenta; though undoubtedly in some cases separation does occur. He gives the following four ways in which this kind of hæmorrhage may occur: 1. By rupture of a utero-placental vessel, at or above the internal os uteri. 2. By rupture of a marginal utero-placental sinus

within the area of spontaneous premature detachment, when the placenta is inserted, not centrally or covering the internal os, but with a margin at or near the internal os. 3. By a partial separation of the placenta from accidental causes, such as a jerk or the like. 4. By partial separation of the placenta, the consequence of uterine pains, producing a small amount of dilatation of the internal os. If the hæmorrhage always resulted from the partial separation of the placenta, there ought to be found pathological appearances which would declare this; according to the age at which the hæmorrhage occurred; this must be so unless healing reunion and a return to the previous healthy condition can take place after partial separation. He rejects as untenable the theories that the lower portion of the uterus becomes, during the latter half of pregnancy, greatly and specially developed, and that thus an incompatibility between the placenta and this part is produced, so leading to the separation, because the placenta ceased to grow about the sixth month; and the converse one that the hæmorrhage depends upon the disproportionate growth of the placenta, separation being produced by the placenta shooting beyond its site. He therefore looks upon these hæmorrhages as accidental, not necessary, and their occurrence is favoured by the extraordinary anatomical condition existing in placenta prævia, as well as other circumstances, some of which are known, as the increased pressure of the blood above what it would be were the placenta inserted high on the uterine walls. ('Edinburgh Med. Journ.,' Nov. 1873.)

Dr. Robert P. Harris read a paper before the Philadelphia Obstetrical Society, May, 1873, on early pregnancy. He relates two cases: 1. A white girl began to menstruate when 11 years and 4 or 5 months old; gave birth to a male child rather over size when 12 years and 9 months old. The mother was stout and well developed, and weighed 100 pounds. The labour was natural, lasting 18 hours: the vertex presented in the second position; she nursed her child and had an abundance of milk. 2. A mulatto girl began to menstruate at the age of 11 years and 9 months. She gave birth to a well-developed female child when 10 days under 13 years old; and was a second time delivered, the child being a full-sized male, when 14 years and 7 months old. The father of the first child was a white boy, 17 years old.

## *Diseases of Pregnancy,*

Fischel relates two cases showing the effect of chronic disease of the heart upon pregnancy. In the first case, the woman had mitral insufficiency, and was seized at the seventh month with palpitation of the heart, a violent cough day and night, and fits of dyspnœa going on to orthopnœa. Her delivery was good and quite a severe menorrhagia followed. For the first five days after delivery she was slightly better, but on the sixth the dyspnœa returned more violently than before. She died at the end of the eighth week. In the second case the patient had aortic insufficiency; at the second month of pregnancy she suffered from palpitation and dyspnœa; at the eighth month œdema of the lower extremities and enlargement of the liver and spleen, and albuminuria. During the last five weeks the attacks of dyspnœa became very severe;

so that the patient could not lie in the horizontal position. Her labour lasted 23 hours; no help required. The lochial discharge ceased on the third day. The patient was better for a time, but the attacks of dyspnœa returned and she died in one of them. ('Allgem. Weiner Med. Zeitung,' 1873).

Dr. A. Wernich writes ('Beiträge zur Geburtsh. und Gynäk.,' ii, 3, 1873) on the course of severe lung diseases during pregnancy. Phthisis runs a milder course during pregnancy, but the reverse in the puerperal state. Acute pneumonia is more severe from the movements of the diaphragm in respiration being impeded by the enlarged uterus, so that increased strain is thrown upon the right side of the heart. In two cases he extracted blood: one by cupping, in the other by venesection. He thinks in all cases where the symptoms are severe bleeding should be performed.

Dr. Auguste Ollivier, writing on the chronic diseases of puerperal origin ('Arch. Générales de Méd.,' Jan. 1873), says that pregnancy produces certain modifications, organic and functional, affecting not only the uterus, but also the greater part of the organs of the body. Besides the generative organs and the breasts, all the other organs of the body undergo nutritional changes during pregnancy. These, overpassing their ordinary limits, may become pathological. Dr. Ollivier illustrates his views by taking certain organs as the thyroid body, the heart, the liver, and the kidneys. He then refers to puerperal goitre: this usually appears about the third or fourth month of pregnancy, and may take on several distinct forms; it may be slight, painless, and passing away after delivery. It may develope very rapidly, and give rise to suffocation (and may terminate in suppuration). It may be chronic, increasing with each successive pregnancy, and may cause death from the compression of the trachea.

Dr. H. Lebert writes on tubercular disease of the female genital organs and on the influence of the female generative period on the development and progress of the tuberculosis ('Archiv f. Gynäk.,' iv, 3.) Tubercular disease of the internal genital organs of the female may be the chief localisation of the affection or exist only secondarily. The disease described as tuberculosis of the cervix uteri does not in reality exist or at least very rarely, diseased glands with caseous epithelial contents about the os uteri having been taken for it. The influence of pregnancy and the puerperal state on tubercular disease is exerted mostly between the ages of 20 and 30, especially 25 to 30, and then from 30 to 40. If in young girls the process is arrested it will still be re-awakened by subsequent marriage, when pregnancy takes place, both during this and the puerperal state. Advanced phthisis generally prevents conception; early phases of tuberculosis do not do so, and usually allow the pregnancy to reach term. Abortion, pregnancy, and the puerperal state, on an average of at least three fourths of the cases, promote the development and rapid progress of pulmonary phthisis. The puerperal state may not only confirm an existing predisposition, but relatively act even worse than pregnancy. A case of phthisis which proceeded rapidly during pregnancy exceptionally may take a slower and more favorable course after delivery. Neither pregnancy nor the puer-

peral state exerts a determining influence on the localisation or form of tubercular disease. The evil influence of pregnancy and the puerperal state on phthisis is most evident in hereditary predisposition. Should parturient tuberculous women pass favorably through the puerperal state they will have but little milk, and can only exceptionally nurse their children, which are generally very sickly and liable later to become scrofulous and still later tuberculous.

Dr. Barnes gives the following as the summary of his Lumleian lectures on the convulsive diseases of women: 1. Pregnancy and labour require for their due fulfilment an extraordinary supply of nerve force. 2. This extraordinary supply of nerve force implies a corresponding organic development of the spinal cord. 3. The provision of an extraordinary supply of nerve force implies a greatly augmented irritability of the nervous centres, rendering them more susceptible to emotional and peripheral impressions. 4. The disturbances in nutrition occasioned by pregnancy almost always entail some alteration of the blood, which increases the irritability of the nervous centres, and favours the evolution of any latent convulsive or rather nervous diathesis, as chorea, epilepsy, or vomiting. 5. When the blood-change wrought by pregnancy is marked by albuminuria, a poisonous action of peculiar intensity is exerted upon the nervous centres tending to produce eclampsia. 6. Obstinate vomiting in pregnancy probably sometimes proves fatal by the development of an unknown organic or systemic morbid process. 7. Menstruation resembles pregnancy in giving rise to an exalted central nervous erethism, and ovulation is a primary existing cause of epileptic, vomitive, and hysterical convulsion. 8. At the climacteric age, again, there is renewed susceptibility to convulsive disease. 9. Pregnancy, by evoking or producing convulsive diseases, under certain known and passing conditions, puts to the test the various theories of the pathology of these diseases. 10. The rational treatment of convulsive diseases in women must take into account the two great factors in the production of these diseases, viz., exalted nervous irritability under the stimulus of the reproductive functions and lowered or empoisoned conditions of the blood. ('Obst. Journ.,' 1873.)

### *Complications and Accidents of Pregnancy.*

Dr. Koratsch reports ('Memorabilien,' 1873) two cases of acute atrophy of the liver. First case: a woman, æt. 26, who had previously enjoyed good health, was attacked with jaundice 14 days before delivery. The day before her confinement she had severe pains in the belly, felt extremely weak, and was much agitated. The urine was analysed by Prof. Retter v. Perger, and gave the following results: a deep yellow colour, and with a feebly bilious odour, sp. gr. 1028; with 93·48 per cent. of water. The quantity of tyrosin and leucin was increased; the urea was as low as 13 per cent.; there was a considerable quantity of cholepyrrhin; the sulphates and phosphates were diminished. The sediment was rich in epithelial elements and crystals of tyrosin. The labour was easy, and hæmorrhage was quickly arrested. The following day the temperature was raised, stupor and convulsions came on, and

death. At the autopsy the liver was found considerably atrophied. The child became jaundiced and died five days after in convulsions. Second case: the woman was also 26 years of age, and eight days before her second confinement she became jaundiced and had sharp pains in the region of the liver, which on examination appeared lessened in volume. The woman was delivered of a child, which was jaundiced, and she felt better. The following day furious delirium and convulsions came on. The next day she died. The liver was notably atrophied and of a chamois colour. The child died eight days after.

Dr. Ogston relates a case of acute yellow atrophy of the liver, abortion and death in a young unmarried woman aged 21, in the fourth month of her third pregnancy ('Brit. Med. Journ.,' Jan. 1873).

Dr. Spencer Smyth relates a case of hydatidiform degeneration of the ovum occurring in a girl aged 13 ('Brit. Med. Journ.,' Jan. 1873).

Dr. Duncan Bulkley, of New York, in a paper read before the New York Academy of Medicine, gives the clinical history of a patient under his care, who was attacked by herpes gestationis in her two pregnancies. He gives a brief account of eight other cases observed during the last 20 years. He considers the affection of the skin depends directly upon the gravid state of the uterus, and may make its appearance at any month of gestation up to the seventh, and generally continues till the organ is emptied of its contents; the eruption is apt to recur at successive conceptions. The cutaneous manifestations are intense irritation, burning, itching or stinging, at times pain with erythema, papules, vesicles and bullæ, which vary in size; the vesicles are in groups, but do not follow any nerve track; they appear first on the extremities, and then spread over the body. The eruption passes slowly away after delivery. At times other neurotic manifestations attend the eruption. Treatment has not had much influence on the disease; relief occurs only on emptying the uterus.

Dr. Angot reports ('Gaz. des Hôpit.,' 62, 1873) a case of uncontrollable vomiting during pregnancy; vomiting set in about the end of the first month, and the patient was so reduced by the end of February that it was considered necessary to induce premature labour; this succeeded, and the patient did well.

A fatal case of vomiting in pregnancy is reported by Mr. Bradley to the Manchester Medical Society; the patient was a widow aged 37; the vomiting came on in the second month of pregnancy, and continued without intermission for seven weeks, when she died exhausted ('Obstetrical Journal,' 1873).

Dr. M. A. Pallen relates ('St. Louis Med. and Surg. Journ.,' Sept. 1873) a case of excessive vomiting in a patient six months pregnant. After trying without success every remedy, abortion was induced by puncturing the membranes. One hour after the patient took some beefsteak and retained it, and the vomiting ceased; the fœtus came away 48 hours after the operation.

Dr. A. McClintock, in a paper on the excessive vomiting of pregnancy ('Dublin Obst. Soc.,' April, 1873), says primiparæ are probably most disposed to this complication, which may set in at any period between the end of the first and the beginning of the ninth month, usually a few

weeks after conception. Its etiology is not satisfactorily established. Retroflexion or anteflexion of the gravid uterus was only a very rare and concurrent cause. A distinction must be made between the sickness of pregnancy and the sickness in pregnancy, such as is induced by phthisis, gastritis, constipation, &c. Artificial abortion was justifiable in extreme cases. Dr. McClintock has tabulated 36 cases where abortion had been practised; in 27 the sickness was arrested and the patients perfectly recovered; in 9, though the vomiting ceased after the expulsion of the ovum, the patients did not recover. In the unfavorable cases, other circumstances apart from the operation led to the unfavorable result, in some the operation had been too long postponed. Extreme caution was necessary in determining in which cases artificial aid was likely to do good.

*Abortion and Premature Labour.*

Mr. M. A. Boyd relates a case ('Dublin Obst. Soc.,' May, 1874) of tetanus following abortion at the third month. When called to see the patient, he found part of the ovum projecting from the os, which he removed, and as hæmorrhage set in the vagina was plugged and astringent medicine given. The next day he was told all had come away; on vaginal examination the uterus was collapsed and appeared to be empty. On the sixth day he was called to find she had passed a restless night, and symptoms of trismus were present; these increased, opisthotonos set in, and the patient died six days after the beginning of the attack; large doses of chloral were given, at first by the mouth, afterwards by the rectum.

Dr. Kronid Slavjansky read a paper before the Obst. Soc. of Edinburgh, July, 1873, on endometritis decidualis chronica as a cause of abortion in some cases of displacement of the pregnant uterus.

Kunne has induced premature labour 15 times, with the following results: all the mothers recovered; only two were ill during their lying-in. Twelve of the children are living, two have died, and one cannot be reckoned. He employed Cohen's method. ('Arch. f. Gynäk.,' vi, 2.)

Berthold has induced premature labour 10 times in three years. All the mothers recovered, one had parametritis, another had acute pleurisy. Five of the children are now in good health. He employed Krause's method. ('Arch. f. Gynäk.,' vi, 2.)

Dr. Raeis, of Phalsbourg, relates ('Gaz. Méd. de Strasbourg,' Jan. 1873) a case of abortion due to adhesions around the uterus, which resulted from a severe attack of perimetritis and parametritis followin a previous labour. The patient was aged 28, and has had one child 3½ years ago; she kept her bed for 17 weeks, and had abdominal and pelvic pains for two years. When about 5 months pregnant she lost one day about three pints of clear watery fluid from the vagina. She continued her ordinary occupation for ten days, when she had a sanguineous discharge, abdominal pain, sickness, and rigors. On vaginal examination the uterus was found anteverted, the cervix high up posteriorly, and the uterus fixed in this position by adhesions. Two days after a copious discharge of pus and several small fœtal parts

were removed. This continued till all had passed. The patient recovered. It is supposed that the uterus was anteverted before pregnancy, and that the adhesions not being able to be stretched by the increased size of the womb, predisposed to abortion.

Dr. Cuthbert related to the Obst. Soc. of Edinburgh, April, 1874, a case of strangulation in utero leading to miscarriage. A patient miscarried at $3\frac{1}{2}$ months. The funis was coiled twice round the neck, and under the coiling it was tightly tied in a single knot. The part of the funis from the umbilicus to the neck was completely on the stretch, the part continuous with the fœtal circulation was round and of a natural size, but the other part, viz. from the neck of the fœtus to the placenta was small and cord-like.

Dr. T. Gaillard Thomas relates ('American Quarterly Journ. of Med. Sc.,' April, 1873) the case of a lady whose death resulted from the introduction of a wire $17\frac{1}{2}$ inches long into the abdominal cavity, with the intention of bringing on abortion; the wire passed under the intestines and the liver, and punctured the right lung for two inches, causing pneumonia and abscess of the lung.

Mr. Barwell read before the Royal Medical and Chirurgical Society, Oct. 1874, the notes of a case where a foreign body, a gum elastic catheter, had lain in the female pelvis for twenty months. This had been passed in to produce abortion and was left in one day, and when attempted to be removed only the ivory button was to be found, abscesses formed about the hip, for which Mr. Barwell was consulted. In the posterior cul-de-sac a line of induration was felt; the same was felt through the rectum; a small opening was discovered high up the bowel, it was dilated, and the finger passed in came upon the foreign body; it was removed; the patient recovered well.

Dr. Aug. Inker writes on the clinical character and treatment of the hydatidiform mole ('Memorabilien, Jahrg.,' xviii, 1). He has collected 53 cases, 5 of these were under his own observation, and the remaining cases are from English and German literature. In 9 cases the age is not given, 2 cases before 20, 18 between 20 and 30, 15 between 30 and 40 and 8 between 40 and 50, 1 beyond 50. Thirty-two times the hydatidiform mole occurred after labour. The more constant symptoms are vomiting, a marked loss of power, leucorrhœa, the discharge of a sero-purulent fluid with an offensive smell. Menorrhagia occurred 41 times. The development of the uterus did not correspond with the period of pregnancy 9 times, 8 times it was relatively too advanced. In 6 cases a fœtus was present with the mole; in one case a twin pregnancy, in one case a placenta, and in one case a multiple pregnancy. The weight of the mole varied from a half to six pounds. In 8 cases death followed the expulsion of the mole, in 5 through hæmorrhage, once through phlebitis, twice through metritis.

The treatment when the hydatidiform mole is recognised is to empty the uterus, either by dilating when necessary and passing in the hands, or by the use of ergot.

Dr. More Madden read a paper before the Dublin Obstetrical Society, Feb. 1874, on mole pregnancy and the so-called uterine hydatids ('Obstetrical Journal,' April, 1874).

Gscheidlen has made a chemical examination of the fluid contained in the cysts of two cases of hydatidiform degeneration of the ovum. The first of these moles examined weighed about 2¼ lbs., had developed for four months and consisted of a mass of clear cysts varying in size from a pin's head to a pigeon's egg. The fluid from these cysts varied in consistence. From the smaller cysts it was thicker, and contained about 29 parts per 1000 solid matter; from the larger the fluid was thinner, and contained 17 parts per 1000 of solid matter. This solid matter was albumen, mucin, inorganic salts and phosphates. No traces of fibrinogenous substance, paralbumen, or sugar was detected. The second mole, 5 months old, weighed over 3 lbs., and was made up of large cysts. The result of the chemical examination was the same. Leucin and tyrosin, but in a much less quantity, were found in the fluid from both moles. The quantity of mucin in the fluid diminished with the age of the mole, whilst the albumen was increased. In the fluid from the 4 months-old mole the solid matter was 19 per 1000, in the 5 months-old mole 26 per 1000; comparing this with the amniotic fluid we see that the quantity of solid matter per 1000 lessens at each month. Thus Vogt found at the 4th month about 20 parts per 1000, at the 6th about 9·7 per 1000. Scherer found at term 8·5 per 1000. No leucin or tyrosin was found in two specimens of amniotic fluid examined. ('Archiv f. Gynäk.,' vi, 2, 1874.)

## *Extra-uterine Pregnancy.*

Mr. W. Ross Jordan communicates ('Obst. Trans.,' 1873) a case of extra-uterine fœtation in a woman aged 29, who had been married one year. About term she had great pain for three or four days, and fancied she was in labour. After examination it was determined to use the aspirator, and a quantity of chocolate-coloured fluid was drawn off mixed with white flakes. Five hours after this gastrotomy was performed; the placenta was left undisturbed, and the openings of the cyst and the abdominal walls were brought together by sutures of carbolized catgut, leaving an open wound about 2½ inches long. The patient did well, large fragments of the placenta coming away about three weeks after.

Mr. John Scott also related a case in a woman aged 32, on whom he was obliged to operate, threatening symptoms having set in after the aspirator had been used; the placenta was left untouched; the upper part of the abdominal wound was closed, the lower left open. The patient died 31 hours after the operation.

Dr. A. Meadows then related a case of supposed extra-uterine fœtation for which gastrotomy was performed. The patient was aged 58, and had ceased to be regular nine years ago. She had pain in the abdomen, which was enlarged by a tumour, and this she thought was due to the presence of a child; 16 years ago she fancied she was pregnant, and in due time had labour-pains, but no child came. A tumour the size of the uterus at term was found on examination. The uterus was high up, cervix small. The sound went 2½ inches. After a consultation, to clear up all doubts, an exploratory incision was made five inches long.

A white friable mass was discovered, having all the characters of malignant disease. As the mass could not be removed the incision was closed. The patient died 53 hours after the operation, and upon opening the abdomen the mass of malignant disease was found to be the omentum, about one inch thick, which overlapped the tumour, which was adherent in every direction, and proved to be a large fibro-cystic tumour of the uterus. This case was brought forward to show the difficulty there is in diagnosing abdominal tumours.

Mr. Lawson Tait, in a paper on the diagnosis of extra-uterine pregnancy, read at the same meeting, said there were two points invariably to be noticed in extra-uterine gestation which had gone past the period, viz. a "show" during the false labour, and that the size of the abdomen diminished after it. The first was due to the general excitement and congestion of the organs involved, especially to the enlargement of the uterus, and the second to the absorption of the liquor amnii after the death of the child. The complete arrest of menstruation during the period corresponding to normal pregnancy is far from being a constant condition. Before the death of the child extra-uterine pregnancy may be mistaken for displacement of the normally pregnant uterus during the early months, for pregnancy complicated with fibro-myoma or cystic disease of the uterus, and more rarely for pregnancy of one-half of a double uterus. After the death of the child the diagnosis was more difficult. The other conditions with which it might be confused were pelvic hæmatocele, and ovarian tumour, especially dermoid cysts, cancer, fibro-cystic disease of the uterus, hydatids of the uterus, and phantom pregnancy. The uterus in extra-uterine gestation was intimately associated with the tumour, generally in front of it, moveable to a limited extent and enlarged. The most important was that the cervix is always patulous. If the child was dead, the tumour would be soft, and parts of the child might be made out by internal or external examination.

Dr. Depaul related the following case of extra-uterine pregnancy to the Paris Surgical Society, Dec. 1873. A woman aged 32, menstruated for the last time in Dec. 1872, and there soon followed symptoms of probable pregnancy. One day the patient fell and felt a violent shake in her abdomen, followed by a great pain. The abdomen enlarged, at the time for delivery there were pains and efforts; nothing more, and from this time persistent pain in abdomen with vomiting supervened. When examined, the abdomen was moderately enlarged, painful, and difficult to explore; fever. At the navel was a soft yielding mass, rising above the umbilicus, ballottement well marked, os uteri patulous, milky fluid in breasts. The inflammatory symptoms increasing, an exploratory puncture was made, giving issue to more than a gallon of pus. This brought ease and the vomiting ceased. Three days later gastrotomy was performed. A quantity of pus and a fœtus were removed, but the placenta being very adherent was left. On the next day the fever was less. The dressing was frequently changed and permanganate of potash used as a disinfectant. On the eighth day the patient suddenly sank, the dressings being soaked with blood. At the autopsy 18 ounces of clots were found in the sac, which was formed by the anterior wall of the abdomen, one kidney, a part of the stomach,

and by the bowels and bladder. The left Fallopian tube opened directly into the sac. ('Obst. Journ.,' 1874.)

Mr. Jonathan Hutchinson in a clinical lecture ('Lancet,' July 19, 1873) gives an account of a case of extra-uterine fœtation simulating ovarian dropsy. A married woman, aged 34, had a large freely fluctuating tumour in the abdomen; it was firmer on the right side, but its shape was like a pregnant uterus; the patient said it had begun on the left side. She had been regular for the last six months, but prior to that there had been a period of nine months suspension, and she had thought herself pregnant; the tumour was carefully examined to discover a fœtus, but failed; a preliminary tapping was advised, as the diagnosis of ovarian cyst was most probable. On tapping a dark brown fluid like linseed tea came away, 4 to 5 pints; this more confirmed the diagnosis of ovarian cyst. Peritonitis set in, and the patient died 72 hours after. At the autopsy a tumour adherent everywhere to the abdominal walls and the omentum was found; cutting into it a fœtus macerated was seen; it was a female; at full term. The case was one of gestation in the left Fallopian tube; the uterus was pushed to the right side, and was in close connection with the walls of the cyst. This case, Mr. Hutchinson points out, differs from the usual events in extra-uterine fœtation, inasmuch as the cyst increased in size, becoming more distended; instead of lessening after the death of the fœtus. A very similar case under the care of Mr. F. Hutchinson is alluded to, where ovarian cyst was diagnosed, and for the same reason; there, owing to adhesions, the tapping did not prove fatal. Mr. Hutchinson then considers the treatment of extra-uterine fœtation cysts, and refers to the conclusions in his paper on this subject published in 1860; he still maintains the opinion there expressed ('Medical Times and Gazette,' Aug. 1860) that extra-uterine fœtation cysts ought not to be meddled with in any way, either by puncture or incision, until suppuration has occurred and an abscess fistula has formed.

Lawson Tait reports ('Medical Times and Gazette,' Aug. 1873) a case of extra-uterine fœtation, occurring in a woman aged 32. She had had one child nine years ago. A retro-uterine tumour was punctured by the aspirator, and a few ounces of fluid were drawn, which was found to be liq. amnii; the cyst was then opened by the knife passed in along the needle of the aspirator, and an eight-months' fœtus delivered; the placenta was then removed; it was found that the cyst was ruptured above, and several coils of intestine had protruded into it. The patient died in a few hours from exhaustion.

Dr. Tenderini gives a detailed account ('Il Raccoghitore Méd.,' 3 sér. xxiii, 4, 1873) of an extra-uterine pregnancy in which the fœtal bones were expelled through the rectum; the woman did well. The patient, aged 31, became pregnant whilst suckling her third child; at the seventh month, labour pains set in, and a great discharge of blood from the vagina, for which a tampon was necessary. In the left hypogastric region, a smooth, rounded, painful tumour was felt; no heart sounds or fœtal parts could be recognised. A few months after she passed, by rectum, a considerable quantity of stinking, purulent fluid, and later

on a fœtal bone, and in the course of some months a large number were passed, and the abdominal tumour disappeared.

Mr. F. H. Maberley relates a case of extra-uterine pregnancy in a woman aged 27, the mother of two children. The cyst had ruptured and gastrotomy was performed; but the patient sank three hours after. ('Brit. Med. Journ.,' July, 1873.)

An interesting case of extra-uterine and intra-peritoneal pregnancy is recorded in the 'Lancet,' Aug., 1873, under the care of Prof. Béhier, Hotel Dieu, Paris; the patient died with symptoms simulating strangulation of the intestine; a fœtus of six weeks was found in the small pelvis enclosed in a blood clot, to which the left Fallopian tube was attached.

A case of extra-uterine pregnancy is reported in the 'Wiener Med. Wochenschr.,' Aug. 8, 1874, occurring in Prof. K. von Braun's clinic. The patient was aged 35, and had borne two children. The woman sinking under a febrile attack it was resolved to operate on her death, as the fœtal heart was counted at 100, and the fœtal movements could be felt. Five minutes after she expired the Cæsarean section was performed, and a living fœtus weighing more than 8 lbs. was removed; its heart beat at 60 per minute for ten minutes, and it made three inspirations; in spite of all attempts at resuscitation it expired. From the autopsy it was evident that the ovum had burst at an early period of pregnancy, and the fœtus had gradually developed in the abdominal cavity; the placenta remaining in its original place. ('Obstetrical Journal,' Dec. 1874.)

Dr. T. C. Lawton relates ('Boston Med. and Surg. Journ.,' 1873) a case of extra-uterine fœtation; the fœtus was retained for 19 years. At the autopsy the fœtus and placenta weighed 4½ pounds. It was found in the epigastric region, to the left of the median line, attached slightly to the left ovary; there were extensive old peritoneal adhesions, but the fœtus was not enclosed in a sac.

## III.—Labour.

### *The Mechanism of Labour.*

Dr. Schlesinger, continuing his experiments formerly undertaken in conjunction with Dr. Oser, to determine the cause of uterine movements, states that electrical excitation of the central end of a spinal nerve calls forth, in from five to fifteen seconds, energetic contractions of the uterus. If artificial respiration be maintained in a curarised rabbit, on which tracheotomy has also been performed, the uterus (as other experiments when the centres were irritated also showed) was violently contracted. The same energetic contraction also occurred when the central end of the divided median or crural nerve was electrically irritated. The transformation of this reflex action (to which category the uterine movements on stimulation of the nipples also belong) is not effected through or by means of the spinal cord; for when the medulla of a rabbit, prepared as above, was divided between the atlas and the occipital bone, irritation of a nerve trunk lasting for

forty seconds was without effect. Schlesinger has arrived at the conclusion that the path by which the excitation issuing from the brain reached the uterus was certainly in part through the nerve plexus surrounding the aorta, but in part also through other, though not yet satisfactorily demonstrated, channels. ('Wien. Med. Jahrb.,' 1873, ii, 4, and 'Lancet,' Feb. 1873. 'Stricker Med. Jahrb.,' 1, 1873.)

Prof. Cyon ('Pflüger's Archiv,' viii, heft 6 and 7, 1873) communicates the results of experiments made on animals upon the innervation of the uterus. Dogs and rabbits of different ages were used; some were put under the influence of curare before experimenting, others not. The following are the chief results arrived at: 1. The uterine plexus is the most important, if not the only, motor nerve, which can produce effectual movements of the uterus by the irritation of its peripheral ends. (Irritation of the central ends only gives rise to severe vomiting). 2. Irritation of the central ends of the first two sacral nerves produces, in a reflex way, powerful uterine movements, which cease after the uterine plexus has been cut through. (Irritation of the peripheral nerves gives rise to powerful contractions of the bladder and the rectum.) 3. Irritation of the brachial, crural, median, sciatic nerve, &c., gives rise to no peristaltic movements of the uterus, but only causes a slight rigidity, and paleness. 4. The effect of the irritation of the nerves disappears if the aorta has been previously compressed; but irritation of the central ends of the sacral nerves still causes, even after the closure of the aorta, peristaltic movements of the uterus. 5. Suffocation through continued interruption of respiration causes powerful peristaltic movements, probably through direct excitation of the involuntary muscular fibres by the accumulated carbonic acid gas.

Dr. Matthews Duncan read a paper before the Obstetrical Society of Edinburgh, April, 1874 on the chief directions and extents of uterine shrinking, specially at the time of the complete expulsion of the contents of the gravid uterus. Shrinking of the muscular wall of the uterus generally caused no rugæ or sulci in the peritoneum, this membrane being sufficiently elastic to follow the shrinking uterus, without forming folds or rugæ. But under the influence of inflammation or other conditions, the peritoneum was deficient in elasticity, and did not shrink co-ordinately with the subjacent muscular tissue, and then it formed ridges and furrows of various kinds. Of these, three kinds were described. The furrows and ridges would of course be in a direction transverse to the direction of the shrinking, and their qualities might indicate the extent of the shrinking, its direction and its position. The shrinking was not uniform in extent or direction in different parts of the uterine wall. The extent and duration of the shrinking of a uterine wall as a whole might be made out by mere measurement, there being fixed points to measure from. Dr. Duncan knew of no other method than this which he now proposed.

Dr. Matthews Duncan, in a paper on the spontaneous separation of the placenta when it is prævia, points out that during labour every portion of the surface of the body of the uterus undergoes contraction, and probably to the same extent; but the lower part of the body of

the uterus was greatly expanded during labour, and contraction could only then take place in the longitudinal direction. The contraction of the uterus in early labour did not separate the placenta, wherever it might be inserted, whether prævia or not. A small amount of the whole expansion of the cervix was sufficient to detach partially the placenta. He concludes that the placenta when prævia is separated by expansion, not by shrinking or contraction of the uterus. This detachment by expansion will go on till the internal os is dilated to a diameter of about four inches, and this may occupy the great part of the whole duration of labour. Expansion beyond this would produce very slight extension of uterine surface and so slight detaching power, which would probably be counterbalanced by placental expansibility; so that this was the measure of the spontaneously detaching area: he showed that Barnes's estimate of three to four inches from the os uteri must be far too great. ('Obstetrical Journal,' 1873.)

Dr. Jacquet writes on hæmatoma of the placenta ('Archives de Physiologie,' July, 1873.) He has examined the various blood-effusions that take place in the placenta and the microscopic changes which they afterwards undergo. They are so common that it is rare not to find a placenta with more or less evident traces of it. They may be divided into three classes: 1. Blood effusions in the substance of the mucous layer between the uterus and the placenta proper; these are rare: they are oval or rounded and appear as though encysted. 2. Intervillar or perivillar hæmatoma (placenta apoplexies of authors); he describes in detail the modifications these undergo. 3. Subvillar hæmatoma: these are the most common and cause the yellowish-white patches seen on the fœtal surfaces of most placentæ. Most of these hæmatomata depend upon some traumatic cause, as blows, falls, &c. General diseases, such as syphilis, do not appear to have anything to do with their causation.

Dr. Braxton Hicks in a paper ('Obst. Soc. Trans.,' 1873) calls attention to the muscular susurrus in relation to the fœtal heart sounds, and points out that—1. The number of vibrations of the abdominal muscles in a state of half suspension can be distinctly counted, watch in hand. 2. Their number and sound are so like those of a very rapid fœtal heart that they may be mistaken for them.

Dr. Emil Rotter communicates ('Archiv f. Gynäk.,' v, 3, 1873) a paper on the uterine souffle perceptible by palpation.

Dr. Matthews Duncan in a paper before the Obstetrical Society of Edinburgh, April 1873, on the changes undergone by the cervix uteri during labour, after speaking of the views held on the state of the cervix during pregnancy, says that labour simultaneously elongates, dilates, and thins the cervix uteri: the body of the uterus is active and pushes the presenting part of the ovum against the cervix; the cervix is mainly passive, and while it is dilated it is also elongated and thinned. The body of the uterus in its regular contractions act upon the cervix and on the vagina equably, and at every part, pulling upon them, and pushing the fœtus into and through them, somewhat as the arms pull on the leg of a boot while the foot is being pushed into and through it. ('Obstetrical Journal,' 1873.)

Dr. Angus Macdonald related to the Obstetrical Society, Edinburgh

Feb. 1874, a case of twins with double placenta prævia (partial) and both children presenting transversely. The same patient had aborted from typhoid fever in a previous pregnancy. ('Obst. Journal,' 1874.)

Dr. Underhill related to the Obstetrical Society of Edinburgh a case of spurious pregnancy and labour in a woman aged 23. ('Obst. Journal, 1874.)

Dr. Gervis read a paper ('Obst. Soc. Trans.,' 1874) on retroversion of the gravid uterus. He related the particulars of two fatal cases, as also of a third which only just escaped being fatal. Dryness of the skin was a prominent symptom in all the cases, and absence of any head symptoms. In the first case miscarriage occurred a few hours after reposition of the uterus, and death on the following day; complete retention had existed for three or four days. In the second case, retroversion with retention had been present for a fortnight; six pints of extremely offensive bloody urine were drawn off; death ensued the day following reposition of the uterus. In the third case, retroversion probably took place three weeks before with retention more or less complete, micturition only being accomplished with much difficulty and straining in small quantities at a time; three quarts of urine were drawn off and the uterus replaced in the knee-shoulder position; inability to retain the urine persisted for ten days, but the patient ultimately did well.

Dr. Playfair relates ('Obstetrical Journal,' June, 1874) a case of retroflexion of the gravid uterus replaced by the wearing of an air pessary.

Dr. P. Muller writes on the treatment of retroversion of the gravid uterus ('Beitr. zur Geburtshulfe und Gynäkologie,' iii, 1, 1874).

Dr. Moldenhauer communicates ('Archiv f. Gynäk.,' vi, 1, 1874) a case of total gangrenous exfoliation of the mucous membrane of the bladder, through long-standing retroflexion of the gravid uterus. It occurred in a woman, aged 33, who had had seven labours at term and one miscarriage. The woman was sent into hospital about six weeks after symptoms of incarceration set in; reposition succeeded; but the woman died after the delivery of a fœtus 8½ inches long. On opening the bladder, a greyish-yellow sac, the size of a child's head was seen; this was the necrosed and exfoliated mucous membrane together with a part of the muscular coat.

Dr. S. Brandeis, of Louisville, reports ('Archiv f. Gynäk.,' vi, 1, 1874) a case of exfoliation of the mucous membrane of the bladder in retroflexion of the gravid uterus. A multipara had suffered for some days from retention of urine, which was relieved by the catheter. At first the enlarged retroflexed uterus was mistaken for a retro-uterine hæmatocele; but later on fœtal parts were recognised and the uterus was replaced. Four days after the patient passed with great pain a complete cast of the mucous membrane of the bladder, coated with crystals of the urinary salts.

Dr. G. Defranco in an inaugural these, Paris, 1874, describes a new method of reducing a retroverted gravid uterus, devised by M. Vignard. The patient is placed in the position usual in France for the application of the forceps and the bladder is emptied: the operator stands on the right of the patient and places his hand firmly upon the

pubes, introduces the four fingers of the right hand into the vagina and lifts up the anterior part of the uterus: this being freed, the fingers are pushed towards the promontory, keeping the radial border of the hand firmly pushed against the pubic arch, and thus pushes successively above the sacro-subpubic diameter, the posterior and the left part of the uterus, and finally the fundus. By this manœuvre the tumour is raised entirely above the superior strait; it balances itself then naturally and the reduction is complete. In this manœuvre the anterior vaginal wall is strongly stretched; but this, on account of its insensibility, can cause no serious inconvenience.

Dr. Edis reports ('Brit. Med. Jour.,' Dec. 1874) a case of retroversion of the gravid uterus in a woman four months pregnant, caused by lifting a child; there was complete retention of urine; the uterus was replaced and the patient went her full time.

Prof. Dohrn writes on the absence of the fœtal pulse during extraction by the feet ('Archiv f. Gynäk.,' vi, 3, 1874), and relates two cases in which during extraction by the feet after the trunk of the child was born, there was a delay and the fœtal pulse was arrested for several minutes; in both cases the pelvis was narrowed: the children recovered and did well. It is usual in such cases when the fœtal pulse is stopped, to leave the delivery to nature and to stop any further attempts at extraction. This Dohrn objects to, as the cessation of the pulse he does not consider due to asphyxia at all, but to the pressure on the head and the brain, causing irritation of the pneumo-gastric nerve. He refers to the writings of Frankenhauser, Leyden, and Schwartz, which show that compression of the brain slackens the heart's beats and may even arrest them; his clinical observations accord with these experiments.

Cohnstein, in a paper read before the Berlin Obstetrical Society, recommends the use of a bent thermometer passed into the uterus as a means of ascertaining whether the fœtus be alive or dead. The fœtus has a higher temperature than its mother and communicates this to the uterus, so that when the thermometer is passed into the uterus (which may be done without any danger) it exhibits, if the fœtus be alive, a higher temperature than when placed in the vagina or the axilla. After the death of the fœtus the temperature of the uterus gradually sinks even lower than that of the rest of the body, as some of its caloric is given off to the dead fœtus. ('Berlin Klin. Wochen.,' 1873. 'Med. Times and Gaz.,' March 1, 1873.)

Dr. Schlesinger delivered an address before the Vienna Medical Society on the "Thermometry of the Uterus and its diagnostic significancy." The question he treated was whether by aid of the thermometer we can diagnose those difficult cases of pregnancy in the early months. In favour of this is the fact that the temperature of the fœtus in utero is higher than that of the mother, and that the greater warmth of the uterus than that of the vagina in pregnancy is derived from contact of the fœtus. He refers to the experiments of Bärensprung and Schroeder upon this point, and to the conclusions of Schroeder, that if the difference between the temperature of the uterus and vagina entirely ceases, or exists only to a very slight extent, we

may infer that the d[illegible]h of the fœtus has taken place. Dr. Schlesinger, feeling that, before any definite conclusions could be arrived at, it was necessary to ascertain if there is any difference between the temperature of the uterus and the vagina in the non-pregnant condition, has made several investigations and finds that the temperature of the uterus is higher than that of the vagina even in non-pregnant women; he concludes that both in the pregnant and the non-pregnant uterus, the temperature is higher than in the vagina, but that the temperature of the gravid uterus is higher than that of the non-gravid. ('Med. Times and Gazette,' 1874.)

*Deformities of the Pelvis and Dystocia by the Mother.*

Dr. Sassmann reports ('Arch. für Gynäk.,' v, 2, 1873) a case of congenital double luxation of the hip in a girl of 18. This is the twenty-ninth case published. The general configuration of the pelvis corresponds with the description given by Guéniot. The pelvic inlet had undergone a transverse compression and the transverse diameter is narrowed. The pelvic inclination is considerable. The author then gives the cause and the mechanism of these malformations and the influence they have upon pregnancy and labour.

Dr. Lambert H. Ormsby writes on deformities of the pelvis ('Medical Press and Circular,' 1874.)

Dr. C. Hennig writes on the advanced forms of osteomalacia ('Archiv f. Gynäk.,' v, 3.) He first gives a detailed account of 3 cases; in the first, the pelvis was deformed in a high degree, and Cæsarean section was performed; in the second, the osteomalacia was complicated by hyperostosis; the third occurred in a sterile woman. The author then reviews the various opinions and theories that have been held on this subject, and refers to experiments made upon animals, horses, cows, &c. The great object of the paper is to give prominence to the relation between osteomalacia and pregnancy and labour. The following facts are quoted, taken from a considerable number of cases. Labour took place naturally in 17 cases; 2 women had natural labours twice; 3 had natural labours three times; and one had even eight natural labours. The labours were mostly severe. Premature labour occurred spontaneously in 4 cases. In 4 cases premature labour was induced. Eight women were delivered by turning. The forceps were applied 25 times. Perforation and cephalotripsy were performed in eleven cases. In 5 cases rupture of the uterus occurred before any operation could be performed. The Cæsarean section was performed on 36 women, eleven recovered; 19 children were saved.

Dr. G. Leopold writes ('Archiv für Gynäk.,' v, 3, 1873) on malformations of the pelvis due to congenital or acquired unilateral luxations of the hip-joint; this paper is based upon 12 cases which he has arranged in a table. The following are the most important conclusions. The pelvis is always atrophied on the side corresponding to the luxation. The exercise of the lower limbs always increases the transverse diameters of the superior and inferior strait; if the lower limbs are not used the superior strait becomes narrower in young subjects, but wider in the adult. The outlet is narrowed in every case.

In congenital luxation the sacrum is inclined to the affected side, whether the lower limbs are used or not. In the acquired it is the same when the affection is of long standing and the lower limbs have not been used, otherwise the sacrum is bent to the healthy side, or is almost straight. This symmetry of the sacrum depends upon the amount of atrophy, the arrest of development, and the weight of the body. The position of the symphysis is variable; with regard to the shape of the pelvis, the following are distinguished; (*a*) Pelvis not flattened transversely (met with in young subjects and congenital luxation); (*b*) Pelvis flattened but not narrowed transversely (in acquired luxation); (*c*), Pelvis flattened and narrowed transversely.

Spiegelberg read a paper before the Gynæcological Section of the Natural Science Meeting, at Wiesbaden, on the course of labour and the treatment in contracted pelvis. His remarks are confined to the three forms of contracted pelvis most commonly met with in practice: 1, The simple flat pelvis (of ricketty origin or not); 2, the uniformly and generally contracted pelvis; 3, the generally contracted flat pelvis. ('Archiv f. Gynäk.,' vi, 2.)

Dr. Cohnstein writes on the complication of pregnancy and parturition by cancer of the cervix ('Archiv f. Gynäk.,' v, 2). He has collected 134 cases. The chief conclusions of the paper are—1. Age. In 58 cases where this was given, the youngest woman was 27, the oldest 49. 2. The number of pregnancies. Of 75 cases in which this is stated 70 were multiparæ. 3. Conception may take place irrespective of the nature of the cancer and when in an advanced stage of ulceration. 4. In the great majority of cases pregnancy reaches its normal end. In 5·3 per cent. the course of pregnancy was uncomplicated, in the remainder there were disturbances of the digestive, urinary, and nervous systems. 6. The influence of pregnancy on the cancer depended upon whether the cancer had developed during the pregnancy or was present before; if the first, its progress was more or less rapid; if the second, it was often modified.

Dr. J. J. Phillips ('Lancet,' March, 1873) relates in detail two cases of labour complicated with malignant disease of the genital passage, and points out the advantages to be derived in malignant induration of the genital passage from the employment of hydrostatic pressure to effect gradual dilatation.

Dr. Lusk reports ('New York Med. Journ.,' Jan., 1873) a case of occluded vagina at the time of labour in a single woman æt. 21. The vagina was short; in its upper part a small fossa, working with the index finger, a passage was made up to the uterine cavity; then Barnes' bags were used and the passage dilated to allow the use of the forceps. Nothing in the history of the patent could explain the condition.

Mr. G. Roper related ('Obst. Soc. Trans.,' 1873) a case of hypertrophic elongation of the cervix uteri at full term; the patient was a primipara, aged 22; the cervix was 4 inches long, as thick as the wrist, and protruded 3 inches outside the vulva; after waiting a sufficient time 7 incisions were made in the os externum, which cut with a firm, hard, gristly sensation; the os gradually dilated, and ten hours after the patient was delivered by forceps. The mother did well. Two months after

the elongated portion was found hanging down into the vagina like a shrivelled skin, and was removed. The patient has had several easy labours since.

Dr. Matthews Duncan read a paper on the size of aperture necessary for the passage of the placenta and for the passage of the accoucheur's hand, before the Edinburgh Obstetrical Society, Feb. 1874. From the experiments he had had made it appeared that an aperture of fully two inches in diameter was required for the transmission of the uninjured mature placenta; in a much lacerated state it may be brought through an aperture of smaller dimensions. The hand could be passed through an os of 2½ inches in diameter or a little more. ('Obstet. Journal,' May, 1874.)

Dr. James Cappie related to the Edinburgh Obstetrical Soc., March, 1874, a case of fibroid of the uterus, complicating pregnancy and proving fatal by torsion of the pedicle.

*Dystocia by the Child.*

Schatz writes ('Archiv f. Gynäk.,' v, ii, 1873) on the conversion of face presentations into vertex presentations by external measures. He first gives the methods usually employed, and speaks of their inconvenience. He advocates the following manœuvres; having exactly ascertained the position of the fœtus by palpation, first, to grasp the shoulders and the chest of the fœtus and push them upwards and towards the side where the back of the fœtus is, and as soon as they are brought into the long axis of the ovum, cease to push them upwards, but only directly towards where the back of the fœtus lies. Whilst the one hand is doing this, the other fixes the fundus of the uterus and the pelvic extremities of the fœtus; it is advantageous also to push the breech towards the place where the shoulders had previously been.

Dr. Frost, in a paper read before the Obstetrical Society of Edinburgh, April, 1873, recommends the following method of delivering in breech presentations, viz., to allow the child to breathe whilst its head is still in utero or in the pelvis, by passing the finger of the one hand into the child's mouth, drawing down the jaw, and at the same time passing the two fingers of the other hand high up into the vagina, and pressing them sharply backwards so as to open the passage to admit air to the child's mouth. He mentions a number of cases in which a living child was born under circumstances which, apart from this, would have caused its death. He has found that the best position of the patient to do this, is to place her on the lap of an assistant, and, with the accoucheur kneeling in front of her; he has then the free use of the hands, and can extract in the direction of the axis of the pelvis, and especially in that of the outlet.

Dr. Inglis advocates the practice of assisting the spontaneous evolution of the fœtus in cases of jammed shoulder presentation ('Obst. Journ.,' April, 1873). He does not approve of decapitation or of evisceration, but believes that if podalic version cannot be effected the natural spontaneous evolution should be assisted as much as possible; should this fail to procure sufficient doubling of the spine, division through it must be made as low in the trunk as possible.

Dr. Angus Macdonald read a paper before the Obstetrical Society of Edinburgh, July, 1874, on the nature and treatment of difficult occipito-posterior positions of the head. This paper was founded upon an analysis of twenty-six operative cases. The following are the chief points maintained:—1. In occipito-posterior positions, if these are persistent, we may safely assume that we have some pelvic peculiarity or disproportionately large head to deal with, and, as a general rule, all attempts at artificial rectification of the position of the head will prove abortive, and are even dangerous, if attempted to be effected by means of levers, forceps, &c. 2. The only exception is when temporary delay is occasioned from accidental displacement of a small head. 3. In cases which threaten to end as "face to pubes," and are at the same time decidedly difficult, it is best to pull the head through anteriorly and not to attempt rectification; care should be taken to guard the perinæum. 4. In cases of obstructed occipito-posterior positions in which the rotation takes place at the outlet of the bony pelvis, while the head is grasped by the forceps, there is great danger of lacerating the soft parts; the blades ought to be removed and the uterus allowed to finish the expulsion of the head, or the curved forceps readjusted or a sharper pair applied. ('Obstetrical Journal,' December, 1874.)

Dr. Engelmann writes on prolapse of the umbilical cord ('Amer. Journal of Obstetrics,' Nov. 1873). He finds the proportion of cases in which this occurs in primiparæ and multiparæ out of nearly 6000 cases, is one prolapse to 108 parturient primiparæ; in multiparæ the ratio is 1 to 85. In vertex presentations, he believes the sacro-iliac fossæ to be the spaces in which the funis most frequently finds room to descend; in foot, shoulder, or cross presentations, the prolapse usually takes place in that part of the pelvis to which the fœtal insertion of the funis is directed. A full account is given of the *post-mortem* appearances of children who have died from a compression of the prolapsed cord. As regards prognosis, he finds that out of 204 cases of vertex presentation the life of the child was saved in only 76, being 3·67 per cent. The mortality among the face presentations is smaller, 4 out of 6 children being saved. In breech presentations only 4 out of 10 were saved. Foot cases have been the most successful at his hospital. As a general rule a prolapse taking place in a primipara gives a much less favorable prognosis for the child than in a multipara.

In a clinical lecture on congenital hydrocephalus in relation to parturition ('Med. Times and Gaz.,' March, 1873), Depaul enumerates the various difficulties which may occur in labours complicated with a hydrocephalic child and the treatment, he then mentions different methods by which the impediment is sometimes overcome. In breech cases, and when the body is born, traction by pressing on the head may force the liquid under the scalp, owing to a separation in the track of the sutures or the fontanelles, or fracture of the bones; then all difficulty ceases, or the fluid may find its way into the cellular tissue of the neck or chest through some of the cervical vertebræ becoming disjointed and the fluid descending by the occipital foramen and the spinal canal escapes through the vertebral fissure.

## *Obstetric Operations.*

*Cæsarean section.*—Dr. F. Valentinotti reports ('Gaz. delle Cliniche,' Nov. 1873) a successful case of Cæsarean section in a woman, æt. 30, rickety and much deformed. The operation was performed, when labour pains set in and a living female child was removed.

Dr. Rota also reports ('Gaz. Med. Italiana Lombardie,' Oct. 1873) a case of Cæsarean section performed on a woman who died in the ninth month of her fourth pregnancy of anasarca. The operation was performed a few minutes after death; the child, a male, was removed asphyxiated, but eventually lived. ('Lond. Med. Rec.,' Feb. 1874.)

Dr. O. Ungarelli reports ('Gaz. delle Clinicale,' No. 48, 1873) a successful case of Cæsarean section; the child was born alive; the woman, æt. 27, had a deformed spine and pelvis. The position of the fœtus had been accurately ascertained, the incision was made over where the feet were lying.

Dr. Gürtler reports a case of Cæsarean section in an osteomalacic pelvis; the mother and child both recovered. ('Archiv für Gynäk.,' v, 3, 1873.)

Kob contributes ('Beiträge zur Geburtsh. und Gynäk.,' iii, 2, 1873) a case of Cæsarean section on a woman æt. 40. The pelvic cavity was blocked by a cystic colloid tumour, so that only the tips of the finger could be passed between it and the symphysis. The tumour was punctured, but could not be emptied. The operation was performed as is usual; the hæmorrhage from the uterine wound could not be stopped, though the uterus was well contracted, till the edges were brought together; the woman died on the third day; the child was saved. Mr. D. C. Nicholls records ('Lancet,' June, 1873) a case where the operation was performed upon a woman æt. 32, on account of malignant disease; the whole cavity of the pelvis being filled with a hard, irregular, nodulated, and firmly attached mass. As the uterus did not contract, the edges of the wound were brought together by two sutures. The woman died on the second day after the operation; the fœtus was dead. Dr. J. Mayer relates a successful case of section on a woman, æt. 30, rachitic to an extreme degree; both mother and child were saved; the antero-posterior diameter measured 1·7 inches ('Archives de Tocologie,' Sept. 1874).

Dr. Cazin reports ('Gaz. Méd.,' Oct. 1874) a case of Cæsarean section in a woman æt. 39; the woman could not be delivered naturally on account of a fibroid tumour; both mother and child were saved.

Dr. E. Martin related to the Gynæcological Society at Berlin a successful case of Cæsarean section, performed on a young woman æt. 26, whose pelvis was kypho-scoliotic and transversely narrowed; the outlet of the pelvis measured 1·6 in. (4 cm.) transversely. The uterine wound was closed with catgut sutures. ('Berl. Klin. Wochenschr.,' 51, 1874.)

The Cæsarean section was made by M. Marcet ('Progrès Med.,' 1873) on a multipara, who, fifteen days before labour, had œdema of the lower limbs and face, and pains in the head; convulsions came on suddenly, and the woman died comatose. The operation was at once performed

and a living female child was delivered three minutes after the last breath had been drawn by the woman.

Blumenfield reports ('Wiener Medizin Wochenschr.,' March, 1873) a case of Cæsarean section after death of a woman æt. 36, who was seven months pregnant and sank from advanced phthisis. The incision was made seven minutes after death, and the operation lasted three minutes; the fœtus, a female, lived three hours.

Dr. C. Ruge related the following case at the Obstetrical Soc. of Berlin ('Berl. Klin. Wochenschr.,' April, 1873). A patient æt. 40 conceived in Nov. 1871. In September, 1872, labour pains set in, with hæmorrhage from the vagina; this soon ceased. The breasts became flaccid, and the patient very weak and ill. In October a fœtal hand protruded from the bowel. She refused all operative interference; she became feverish and died delirious. On section the left arm of the fœtus protruded 2½ inches from the rectum. The uterus was pushed to the right by a cyst containing the fœtus. Two other communications with the cæcum and sigmoid flexure were found. The left Fallopian tube opened into the cyst.

### *Accidents during Labour.*

*Rupture of the uterus.*—Mr. Depaul communicates the following case. A ricketty woman had been delivered four years before by cephalotripsy; being pregnant it was determined to induce premature labour. The antero-post. diameter was 2½ inches. Tarnier's intra-uterine dilator was introduced; it brought on a few pains and then fell out. While preparing to pass a sponge tent, the woman got up off the bed and was suddenly seized with a severe pain in the upper part of the belly. She became blanched, and died in a few hours. The Cæsarean section was performed; child born dead. At the autopsy the placenta was adherent closely to the uterine wall. At the upper and posterior part of the organ a small perforation. This had opened up a venous sinus, and from this about 6½ lbs. of blood had poured into the abdominal cavity. The uterine tissue around the wound was thinned, and under the microscope presented a granular fatty degeneration.

Dr. T. More Madden, in a paper on rupture of the uterus and vagina, after giving a table of the cases that have occurred at the Rotunda Hospital, Dublin, relates two cases which have been under his care. In the first the patient recovered, though the rent was so large that the whole hand could be passed into the abdominal cavity. In the second the patient died, the uterus having been completely separated from the vagina. ('Obstetrical Journal,' 1874.)

Moldenhauer reports a case of rupture of the uterus occurring in a young woman who received a severe blow on the left side. She was seized with violent abdominal pains and severe general symptoms. On examination the os was fully dilated, the head low down and in the second position. As uterine action had completely stopped the forceps were used, and a macerated fœtus was easily delivered. A large quantity of black blood followed. By following up the umbilical cord the finger passed into the peritoneal cavity, and from this the placenta was easily withdrawn. At the autopsy the anterior vaginal cul-de-sac was separated

from the uterus by a rent 6 inches long running transversely across the round ligament. On the right side, and at the border of the anterior and posterior labia, the uterine tissue was torn for about $3\frac{1}{2}$ inches. The abdominal cavity contained a large quantity of blood, and there were signs of recent peritonitis. There was no thinning of the uterine tissue anywhere. ('Archiv f. Gynäk.,' vi, 1, 1873.)

Mr. Robert Grey communicated a case in which the greater part of the cervix uteri separated during labour. The patient had been twelve hours in labour; on examination the head was halfway through the pelvis surrounded by about half-an-inch or more of the anterior portion of the cervix uteri, which was thick, soft, and congested: it had a pulpy feel to the touch; passing the finger round the posterior portion it was found to be separated from the body, leaving a ragged, uneven margin. There was a slight oozing of blood from the vagina. The separated portion was removed and a living child delivered by the forceps. There was no febrile disturbance. The attached ring separated completely on the fourth day. The patient recovered. The only cause assignable for the laceration was pressure of the cervix between the head and the pelvis. ('Obstet. Soc. Trans.,' 1874.)

Dr. Gervis gives in detail ('St. Thomas's Hospital Reports,' 1873) a case of annular laceration of the cervix uteri during labour. The conjugate diameter was contracted by the projection of the sacral promontory, and forceps were used, and delivery effected without difficulty. Upon introducing the hand to remove the placenta a loop was found stretched across the vagina. This was a ring of the cervix about $\frac{3}{4}$ in. broad, and attached for about 2 in. in front. The ring was replaced as nearly as possible, and complete rest enjoined. A month later the parts had united, and only a linear depression marked the line of separation.

Dr. Parry reports ('Amer. Journ. of Obstetrics,' 1873) three cases of rupture of the uterus. The first occurred in a rachitic dwarf through neglect. The child, placenta, and much blood were found in the abdominal cavity. The antero-posterior diameter was $2\frac{1}{4}$ inches. In the second case the labour was difficult from the size of the head. The forceps were tried, then craniotomy was performed. The uterus was found ruptured by a clean cut wound. The patient recovered after a severe attack of peritonitis. In the third case there was disproportion between the size of the pelvis and the child's head. The uterus ruptured. The child was delivered by forceps. The patient died.

*Inversion.*—Dr. Kidd gives the details of a case of inversion of the uterus, of four months' standing, produced by dragging at the cord to bring away the placenta; he reduced it by manipulation under chloroform ('Dublin Med. Journal,' 1873).

Dr. G. Johnston relates, in detail, a case of inversion of the uterus of seven months' standing occurring in a woman, æt. 35; it happened at the time of the coming away of the placenta, following which she had great flooding; she had had hæmorrhage more or less abundant ever since. She was put under chloroform, and the uterus was reduced by pressure with the fingers. ('Obst. Journal,' 1873.)

Dr. G. W. H. Kemper relates ('Indiana Journ. of Med.,' March, 1874)

a case of inversion of the uterus, in a woman, æt. 33; the placenta was adherent to the fundus, and it and the uterus were expelled by a violent pain; after detaching the placenta, the uterus was easily reduced.

Dr. Hope reports ('Brit. Med. Journ.,' September, 1873) two cases of inversion of the uterus. The first occurred in a woman, æt. 41, who had had eight children; she was seen twelve months after the inversion and presented the usual symptoms; the inversion was reduced by taxis under chloroform; the patient did well. In the second case the inversion had existed for three years; taxis was tried many times unsuccessfully, and continued pressure was kept up by air bags; these means not succeeding, the uterus was amputated by the écraseur; the patient did well.

Dr. Barnes, in the 'Obstetrical Journal,' April, 1873, describes a new method for effecting reduction of the uterus in chronic inversion, and details two successful cases. Having failed to replace the uterus by taxis and continued pressure, he incised the os uteri at two or three points of its circumference, so as to relax the constriction formed by the circular fibres of the cervix; on again applying pressure the uterus went up into its place. He also recommends the following instrument for maintaining elastic pressure. It consists of a curved stem surmounted by a hollow cap of caoutchouc; this latter rests against the fundus uteri: to the lower end of the stem strong elastic bands are fixed, two in front and two behind, which are attached to an abdominal belt; by bracing up the posterior bands the cap is pressed up against the fundus.

Spiegelberg relates ('Archiv f. Gynäk.,' v, 1) a case of spontaneous reduction of an inverted uterus, occurring in a woman æt. 40, in whom in her twelfth labour inversion took place through the midwife pulling on the cord to hasten delivery of the placenta. She attempted to replace it, but without success; six weeks after copious hæmorrhage occurred. On admission to hospital the uterus was found inverted and closely embraced by the cervix. Severe diarrhœa set in, and on examining the patient 14 days later the uterus was found reduced.

*Hæmorrhage.*—Dr. Matthews Duncan writes ('Brit. Med. Journ.,' Nov. 1873) on the causes of unavoidable hæmorrhage during miscarriage or labour, when the placenta is prævia; hæmorrhage during miscarriage or labour is the only loss that can be truly called unavoidable, and that because we have no means of preventing it, and because labour cannot go on without inducing it. When the placenta is prævia hæmorrhage is unavoidable, and this is caused by the separation of the placenta through the expansion of the lower uterine hemispheroid in order to form part of the genital passage, and the hæmorrhage continues till the limit of spontaneous premature detachment is reached. The quantity of blood lost is greater in proportion to the centrality of the placental attachment and the largeness of the body to be expelled, that is, the age and size of the child. Then as a source of hæmorrhage the absence of the retentive power of the abdomen.

Dr. Gustavus Murray ('Obst. Journ.,' April, 1873) writes on varicose hæmorrhage from the cervical zone of the uterus compli-

cating labour. A primipara was seized with hæmorrhage, at first supposed to be due to placenta prævia. No portion of the placenta, however, was felt. After rupturing the membranes and giving ergot labour was safely completed. In the patient's second labour hæmorrhage again occurred at the first stage. The os uteri was found dilated to the size of a crown; the cervix felt large and pulpy posteriorly. The finger introduced into the cervix and curved round its circumference did not meet with the least trace of placenta, but corresponding to the pulpy portion of the cervix posteriorly a swelling, rugose in character, with raised and thickened edges, was felt. Two fingers passed over and beyond this enlargement reached true smooth uterine tissue on all sides. On pressure the swelling yielded and became smaller, and the bleeding was noticed to lessen or cease, returning again when the pressure was removed. The explanation of the hæmorrhage Dr. Murray believes to be an unusual varicose state of the veins at the cervix uteri giving way during labour.

Dr. J. H. Aveling writes on immediate transfusion in England ('Obst. Journ.,' August, 1873). He relates seven cases in which it has been performed; two of these are taken from the register books of the Royal Society of London, and were performed in the year 1667. Three of the others were performed by Dr. Aveling, one by Dr. Savage, of Birmingham, and the seventh by Mr. Clement, of Shrewsbury. These cases were all successful. Dr. Aveling recommends immediate transfusion on the following grounds:—(1) The exact quantity of blood required is taken from the blood-donor and no more. (2) No delay is caused by previous complicated manipulations of the blood, it being allowed to pass from vein to vein physiologically unchanged. (3) The chances of coagulation are small, because the blood is removed from the action of the living vessels for only a few seconds, and glides smoothly through the india-rubber pipe without being exposed to the air.

Dr. Carey, of Guernsey, reports a successful case of transfusion in post-partum hæmorrhage. The blood was drawn into a warmed wine-glass and then injected by an ordinary glass syringe. The patient rallied at once after four ounces had been injected. Puerperal mania set in, and she died exhausted eleven days after the operation ('Obst. Journ.,' 1873).

Dr. Henderson, of Shanghai, reports ('Lancet,' Oct. 1874) a case of post-partum hæmorrhage, in which perchloride of iron was injected with success after other remedies had been tried; transfusion was then performed twice, at an interval of two hours; the first time a saline fluid was used with alcohol; the second time defibrinated blood.

Dr. Playfair relates ('Obst. Journ.,' May, 1873) a case of post-partum hæmorrhage, in which the patient's life was saved by the injection of perchloride of iron. The case is also intended to point out one of the dangers of the practice. Alarming symptoms came on on the third day, which were explained by the fact that the perchloride at once corrugated all the blood and coagula with which it came into contact, and these clots in due course began to decompose and septic absorption took place. By the finger and the intra-uterine injection of

Condy's fluid these coagula were gradually broken down and removed, and the unfavorable symptoms soon disappeared.

Mr. W. P. Swain relates two cases of post-partum hæmorrhage treated by the injection of perchloride of iron; both cases were successful. ('Brit. Med. Journ.,' 1874.)

Dr. Brierley ('Lancet,' Aug. 1873) details two cases in which he obtained good results and speedy contraction of the uterus by injecting subcutaneously 10 minims of a solution of ergotine (3 grains of the extract). In one case this was tried after the injection of a solution of perchloride of iron (1–4).

Dr. P. C. Williams, of Baltimore, strongly recommends the hypodermic injection of the fluid extract of ergot in post-partum hæmorrhage. He relates three cases of severe flooding in which the uterus contracted firmly, and remained so after 30 minims had been injected; he has seen no abscess result. The solid extract dissolved in water, 1 grain to a minim, is to be preferred to the fluid extract.

Dr. Aveling reports a case in which he transfused lamb's blood into a patient who was dying from what appeared to be loss of blood from the bladder. The patient sank soon after the operation was performed. ('Obst. Journ.,' July, 1874).

Dr. Lombe Atthill read a paper before the Dublin Obst. Soc. on the use of the perchloride of iron in post-partum hæmorrhage. He relates 5 cases in his own practice in which it was used with good result; one case died of peritonitis on the 15th day. He thinks that cases of post-partum hæmorrhage occur in which the injection of the perchloride or of some other styptic is alone able to arrest the hæmorrhage; that the tendency to pyæmia, septicæmia, or peritonitis is not necessarily increased by the injection; the treatment is especially applicable to anæmic patients.

Dr. Hill Ringland at the same meeting read a paper upon the treatment of post-partum hæmorrhage by the application of the solid perchloride of iron to the interior of the uterus. This he had done in 23 cases; 14 recovered well, 3 had tedious recoveries, and 6 died; two of these latter died, one within two hours, and the other within three hours after delivery, and this could not be said to be due to the employment of the iron.

Dr. R. C. Mackintosh relates a case of post-partum hæmorrhage in which galvanism was successfully used after all other remedies had been tried ('Brit. Med. Journ.,' Aug. 1873).

Dr. Heywood Smith brought before the Obstetrical Society of London a case illustrating the treatment of post-partum hæmorrhage by the intra-uterine injection of perchloride of iron. A patient on the third day after her delivery complained of pain in the hypogastrium. On the tenth day hæmorrhage occurred; on the 11th day, as hæmorrhage continued, a solution of one pint of strong liq. ferri-perchloridi to 8 of water was injected. On the 16th day, the bleeding continuing, the injection was repeated; on the 18th day the uterus was again injected with iron 1 in 4, and again on the 20th day with equal parts of the solution of iron and water. On the 21st day a strong solution of iron was injected into the uterus with an intra-uterine syringe holding two

drachms. This produced severe pain, but completely stopped the hæmorrhage, which never amounted to flooding, but oozed continually, of a bright red colour. On the 23rd day the patient was delirious and the discharge brown and offensive; on the 25th day great dyspnœa, and on the 28th she died. The uterus was removed and examined by Dr. Snow Beck and the author. It was nearly 5 inches long and four broad, and its walls ¾ of an inch thick. The anterior and posterior surfaces were marked with black streaks. The tissue was soft, but otherwise apparently healthy. Its inner surface was covered with a dark reddish black fluid, and at the junction of the upper third with the lower two thirds was a depression stained black; near the centre of it an artery hung out more than one eighth of an inch. Close to the depression and fitting into it was a rounded mass of placenta about the size of a small filbert. A small portion of the end of an artery showed the free extremity obliquely puckered, its margin rounded and the canal unobstructed. The author believed the case taught—1. That post-partum hæmorrhage happening after complete contraction of the uterus, and therefore after the uterine sinuses have been emptied of blood, is evidently arterial. 2. That when a solution of the perchloride of iron is injected into the uterus the sinuses take it up and carry it into the veins, the tissue around the sinuses becoming stained. 3. That the perchloride of iron does not produce contraction, nor by coagulation of blood blocking of the orifices of the uterine arteries. 4. That the perchloride of iron is a styptic the use of which in the cavity of the puerperal uterus is not innocuous. ('Obst. Journ.,' 1873.)

Dr. Snow Beck writes on uterine hæmorrhage during the puerperal period, especially with reference to the source and the cause of the hæmorrhage; he concludes that the blood comes from the torn utero-placental arteries; the hæmorrhage is not venous by retrogression; when the uterus is not firmly contracted the canals of the veins remain pervious, and any noxious secretion or other soluble substance at the inner surface is taken up and carried along these canals into the general circulation; the coats of the arteries are so distinctly adherent to the uterine tissues as to prevent any retraction in their length or contraction in their diameter, and are so incorporated with the tissues in the uterine walls that the condition of their canals is only influenced by the contraction or relaxation of the tissues comprising the walls; the formation of clots in the canals of either the arteries or the veins has never been shown to exercise any influence as a means of arresting hæmorrhage; the injection of styptics into the gravid uterus to arrest hæmorrhage incurs the serious risk of causing the inevitable death of the individual, from the substance being taken up by the veins and conveyed into the general system; the only safe means of arresting post-partum hæmorrhage and preventing those puerperal complications which too frequently follow child-bearing is—by closing the canals of both the arteries and the veins through the means of complete and permanent contraction of the uterine walls.

Dr. M'Rae writes ('Edin. Med. Journ.,' Sept. 1873) on the use of the electro-magnetic current in the second stage of labour, and he quotes 3 cases in illustration. The method of application is as follows:

one of the electrodes, a flat piece of metal of the size of the two hands opened and joined in the line of the long axis and curved to fit the transverse abdominal curve, is applied to the abdominal parietes, and retained by the patient's hand, a layer of blankets lying between the fingers and the metal. The other pole is placed against the perineum. The uterus lies in the direct line of the current and its fibres contract. The contraction of the abdominal muscles also aids in the expulsion. Dr. M'Rae points out that if one of the poles was applied to the os the whole uterus would be thrown into tonic contraction, and the os would be narrowed and labour obstructed. In the same journal, May, 1874, Dr. M'Rae reports 2 other cases, on which the electro-magnetic current did good in arousing the action of the uterus, but was insufficient for delivery through other mechanical causes.

Dr. Playfair writes ('Lancet,' Feb. 1874) on the value of chloral as an anæsthetic during labour. It has an advantage over chloroform that it does not seem to diminish the strength and intensity of the pain, while it markedly diminishes their painfulness. It can also be administered at the termination of the first stage before the complete dilatation of the os to lessen the severity of the sharp grinding pains. It is preferable to opium for this, as it does not stop uterine action; it is also of great use in rigidity of the cervix. Dr. Playfair recommends its administration in fifteen-grain doses, at first every fifteen minutes; after the second dose the interval should be increased and the dose lessened.

Dr. Plumb and Dr. Lincoln write on the oxytocic effects of quinia ('Amer. Journ. of Med. Sci.,' July, 1873). They both speak of its usefulness when given to hasten labour, when dilatation is going on and the pains are not very strong.

Dr. Martemucci ('Gazz. delle Cliniche,' April, 1873) considers electricity preferable to ergot in cases of inertia uteri during labour. 1. Because the electricity can be stopped when needful, but the action of ergot is uncontrollable; (2), unless the labour is speedily completed after giving ergot the fœtus is in danger from pressure on it and the placenta; (3), under the action of electricity the physiological uterine contraction can be imitated; this is not so with ergot. Electricity is also useful in the hæmorrhage depending upon placenta prævia ('Lond. Med. Rec.,' May 22, 1873.)

Dr. Dujardin Beaumetz ('Gaz. Med. de Paris,' No. 5, 1873) gives a case of eclampsia successfully treated by chloral. In a second case, in which eclampsia was threatening, the woman suffering from œdema of the legs and albuminuria, and with symptoms of uræmia, the attacks were warded off by chloral. He has found the chloral of use in those cases where the pains are very painful, doing no work and the woman of a nervous temperament, the contractions were rendered less painful, and were more powerful and so hastened the completion of labour.

Mr. Bourdon has also noticed that after the administration of chloral the contractions become more powerful, and the duration of labour is shortened.

Dr. Pellissier (Thèse, Paris, 1873), speaking of the action of chloral hydrate, says that it in no way suspends the course of labour, but

diminishes the pain. It may be given to weak, nervous, and irritable women. It should not be given in affections of the heart or vessels of the lungs or neck, or in any condition which tends to syncope, anæmia, &c.

## IV. The Puerperal State.

Dr. Playfair in a paper on puerperal thrombosis ('Obst. Soc. Trans.,' 1874) points out that, on account of its tangible symptoms, attention has been chiefly directed to only one of its manifestations—phlegmasia dolens. He discusses at some length the analogies between this and thrombotic affections in other parts of the body, especially in the heart and pulmonary arteries, and brings forward many arguments to prove their essential identity. In considering the question of spontaneous thrombosis and embolism, he argues in opposition to the view of Virchow and other writers, that the former was a possible though a rare affection. After discussing the anatomical conditions accompanying puerperal thrombosis and cerebral thrombosis and embolism, the author proceeds to consider the possibility of eventual recovery after pulmonary obstruction, bringing forward several illustrative cases, and concludes by discussing the treatment.

Dr. Morton, writing on the treatment of puerperal septicæmia by elimination ('Obst. Jour.,' Sept. 1873), gives the details of six cases which presented the following features: rigors at the onset, rapid pulse, 120—140; temperature from 101°—104°, sometimes 105° to 106°; suppression of the milk and lochia, abdominal pains, headache, tongue dry and brown, or dry, red, and glazed. The author's rule of treatment is never to repress diarrhœa; when there is improvement without it to let well alone; when no improvement without it, to lose no time in setting it up. The purgative employed was calomel, 3—5 gr., either with Dover's powder or compound colocynth pill; opium should not be given unless with calomel. The sulphite of soda was also given, though the author does not think it does much good.

Dr. Tilt read a paper on lymphangitis in pelvic pathology ('Trans. Obst. Soc.,' 1874).

Dr. J. J. Phillips relates a case of urgent and prolonged dyspnœa coming on suddenly after labour in a patient æt. 36. The dyspnœa was most urgent; respirations 48 and pulse 144, very small; the respiratory murmur was heard over the chest in front and behind. First sound of heart muffled; otherwise the sounds were normal. The history of the symptoms pointed to a coagulum in the pulmonary artery. Brandy in repeated doses was given, with at first 5-grain doses, then 10 of the carbonate of ammonia. She was better the next morning, and then gradually improved.

Dr. Wiltshire writes on continuous discharges after delivery ('Obst. Jour.,' 1873).

Dr. Milne writes on the causation, effects, and treatment of uterine subinvolution ('Edin. Med. Jour.,' 1873).

Dr. Angus MacDonald in a paper read before the Edinburgh Obstetrical Society ('Edin. Med. Jour.,' June, 1873), on latent gonorrhœa in the female, supports Dr. E. Noeggerath's views, and thinks

that obscure cases of gonorrhœa have more to do with the causation of certain cases of puerperal fever, and with acute and chronic pelvic inflammations, and chronic catarrh of the genital organs, than is supposed. He gives 4 cases in which an acute endometritis supervened in the puerperal state in patients the subjects of chronic or latent gonorrhœa; the diagnosis was confirmed by the occurrence of severe ophthalmia in children.

Dr. F. Weber (St. Petersburg) reports ('Berlin Klin. Wochens.,' 1873) four cases of amaurosis which have come under his observation, and which show that amaurosis in lying-in women is intimately connected with puerperal eclampsia; yet it is not to be altogether considered as one of the prodromata, for in one case it came on apart from any eclampsia, and twice it occurred after the fits had ceased and only once preceded them. Whilst puerperal eclampsia is relatively frequent, amaurosis in lying-in women is admitted by all to be very rare. Neither can it be said to always depend upon uræmia. Of the four instances three were met with in multiparæ, whilst, of a hundred cases of eclampsia seventy are primiparæ. Amaurosis occurring in one labour in no way predisposes the woman to its recurrence in the following ones.

M. Masé reports the following case of uræmic eclampsia in a puerperal woman. A woman, æt. 35, had had seven normal pregnancies and was eight months pregnant when she had swelling of the legs and face. She lost consciousness and had fits, became comatose with stertorous breathing; the fœtal heart was heard, and as a fatal issue was anticipated, everything was prepared for performing the Cæsarean section; this was effected two minutes after the death of the mother, and a living child was extracted three minutes after her death: it did well. Analysis of the urine showed much albumen and little urea; the kidneys presented the characters of parenchymatous nephritis. In this case the temperature was remarkably lowered. ('Progrès Medical,' 1873.)

Mr. Bourneville devotes the second part of his book on the 'Clinical and Thermometric Studies of Diseases of the Nervous System' to the consideration of uræmia and puerperal epilepsy and hysteria. Uræmia of whatever form causes a progressive and considerable lowering of the central temperature, and this lowering increases more and more as the disease approaches the fatal termination. In eclampsia the temperature rises from the beginning to the end; between the attacks the temperature remains high and at the moment of convulsions the temperature slightly rises; if a fatal termination approaches the temperature continues to rise; as the attacks pass away the temperature falls.

Dr. B. M. Cohen writes on eclampsia occurring during pregnancy, labour, and the puerperal state ('Archiv f. Gynäk.,' vii, 1).

Dr. Lize writes on puerperal convulsions and the management of cases when the cervix is neither dilated nor dilatable. ('Annales de Gynæcologie,' Sept. 1874.)

Dr. Steele reports a case of apoplexy, with convulsions and hemiplegia occurring on the fourteenth day after delivery; the patient recovered. ('Brit. Med. Journ.,' Aug. 1873.)

Dr. Marshal gives the details of a case of eclampsia successfully treated by injections of chloral. ('Berl. Klinisch. Wochenschr.,' March, 1873.)

Dr. T. More Madden read a paper before the Dublin Obst. Soc., May, 1874, on puerperal convulsions; he relates eight cases which had occurred in his practice, and enters fully into the causation and treatment of the affection. ('Obst. Journal,' July, 1874.)

Prof. Walley read a paper before the Obst. Soc. of Edinburgh, March, 1874, on the comparative anatomy of the arterial cerebral circulation in animals and the human subject, as bearing on parturient apoplexy and convulsions. ('Obst. Journal,' Sept. 1874.)

Dr. J. J. Phillips ('Obst. Journ.,' April, 1873) relates a case of paralysis of the bladder following labour and lasting for two years, which was cured after the application of a galvanic battery current, applied daily, for about a month.

Olshausen writes on the diseases of the urinary organs during pregnancy and following labour ('Beitr. f. Geburtsch. und Gynäk.,' ii, 1873), and draws attention to the frequency during pregnancy and labour of various diseases of the urinary organs, such as catarrh of the bladder, pyelitis and nephritis.

Dr. Carl Rokitansky, jun., publishes some researches upon the composition of the lochia. ('Stricker's Jahrbucher,' 1874.) At first it consists almost entirely of blood, the number of red corpuscles gradually diminish, but in no regular way. The number of pus-corpuscles increases from the delivery, on the first day very few are found, more on the second, and the maximum is usually reached on the third day. The uterine wound resembles any other surgical one in this. The pus globules are oftener granular in the lochia of sick women than in those in good health. The trichomona is found in every lochial discharge as it is in the vaginal mucus apart from the puerperal state. The author thinks a greater number of bacteria are found in the lochia of women suffering from puerperal fever; but the presence of bacteria in the genital secretion is not characteristic of puerperal fever; the author has found them under other circumstances.

Dr. Haussmann writes (Berlin, 1874) on the parasites of the female sexual organs and on the parasites of the breast. He commences by describing the vegetable parasites which may be brought to the nipple by the mouth of the nursling; these are—1. Bacteria and vibriones. 2. Spores of various kinds, coming from the vagina or the rectum, and transmitted to the child at the moment of birth. 3. The spores of oidium lactans; 4. those of oidium albicans. The author thinks these two are identical; he has not met with the leptothrix buccalis which Seux speaks of. As to the animal parasites Haussmann denies the presence in the breast of the various kinds of maggots which ancient authors speak of. He has especially studied the echinococci and the hydatid cysts of the breast, of which he has collected six observations. The hydatid cyst develops in the connective tissue which separates the acini of the gland; it forms an indolent, fluctuating tumour, intimately adherent to the gland, movable under the skin and the pectoral muscles. The tumour very slowly increases, at times during lactation it rapidly enlarges. In one case a woman had nursed her child without inconvenience with a breast occupied by a hydatid cyst. The general health is unaffected by the presence of the tumour. Laying

open the tumour and the removal of the hydatid is the only treatment to employ. ('Revue des Sc. Med.,' Jan. 1875.)

## V. The Infant.

Dr. Kezmarszky writes ('Archiv für Gynäk.,' v, 3, 1873) on the alteration in weight of mature new-born children. He made two series of observations during the years 1871–2 upon this subject. He gives the following conclusions as the result of his observations:—(1) All children lose in weight the first few days after birth. (2) The loss takes place in the first few hours after birth, but then for a time the weight may remain the same if an abundant supply of food be given before the intestines and bladder have been emptied; exceptionally, even, there may be an increase of weight, which, however, does not last beyond the sixth hour of life. (3) The increase in the weight begins, as a rule, on the second or third day. (4) The loss is more sudden than the gain, so that up till the seventh day the gain has been scarcely more than half the previous loss. (5) The beginning of the increase of weight has no connection with the separation of the stump of the umbilical cord. (6) Boys begin to increase in weight, on the average, earlier than girls; they probably lose slightly less, and show a greater gain than the latter; also a larger number of boys reach their original weight in the same period of time. (7) The growth is more marked in children of pluriparæ than in those of primiparæ.

Dr. And. v. Hüttenbrenner ('Jahrb. für Kinderheilk.,' viii, 1, 1873) gives a report of three cases of tetanus neonatorum which were treated by chloral hydrate, two of which were cured; from these cases he draws the following conclusions:—(1) That tetanus is not an absolutely fatal disease. (2) That tetanus may run its course either with or without fever; that those cases which are accompanied with high fever and run a rapid course are the cases where the tetanic symptoms are probably only a part of the symptoms of a general blood-poisoning; whilst the other non-febrile cases are only to be looked upon as reflex convulsions dependent upon peripheral irritation. (3) With regard to prognosis the cases without fever are the most favorable, although a high degree of fever does not necessarily render the prognosis fatal. (4) Hydrate of chloral is by no means a specific against tetanus, yet it is to be preferred to other medicines (1) because it is a pure hypnotic; (2) because it has not the disagreeable after-effects of morphia, nor does it cause hyperæmia of the brain; (3) because it can be easily administered to the child.

Dr. A. Städfeldt writes on trismus neonatorum. He gives a statistical account of the disease for twenty years; he has noticed a remarkable diminution of late years. He gives an account of 93 fatal cases out of 20,806 births. Sex does not present any particular disposition to trismus (the numbers were 51 boys and 42 girls); nor is it favoured by the duration of labour. Dr. Städfeldt denies that trismus neonatorum is more frequently met with in puerperal epidemics than when such are absent, and appeals to his tables in support of this. In Scandinavia the disposition to trismus is least in winter and greatest in the months

of August and September. Hygienic conditions have the most to do with it, as it occurs more frequently in the crowded private houses for delivery than in the maison d'accouchements. As trismus often attends the practice of the women who have charge of these private houses, Dr. Stadfelt thinks the malady may be contagious, and that probably there exists a specific contagion for the disease. ('Archives de Tocologie,' July, 1874.)

Prof. Bohn writes on intermittent fever and its various forms during childhood ('Jahrb. für Kinderheilk. und Phys. Erziehung,' vi, 2, 1873). The age of childhood is much more susceptible to the malarious poison than the adult age. The effect of the poison on the spinal nervous system is more violent and rapid in the growing body. The children of mothers who had suffered from intermittent fever during pregnancy were born with large tumours of the spleen, with all the signs of malarial cachexia, colouring of skin, &c. Some of the children immediately after birth fell ill with intermittent fever; others did not recover for years. Regular intermittent fever was observed in 465 children from the first year (21 cases) to the fifteenth. The common type was the quotidian. Characteristic regular attacks are exceptional in children: the paroxysms are incomplete, fragmentary, often difficult to recognise. A constant symptom is the enlargement of the spleen, sometimes slight, but always present, and if rapid accompanied by acute radiating pains during the hot stage. A gastro-intestinal catarrh is so common an accompaniment that it may be considered a valuable diagnostic sign. Jaundice and bronchial catarrh are at times concomitant affections. The youngest children observed by Bohn were 10, 14, and 20 days old. Irregular varieties are often met with and are thus characterised: Intermittent sporosa; I. convulsiva; I. neuralgica; I. vertiginosa; I. psychopathica; that with bloody diarrhœa, with croupy and laryngeal symptoms, and with pneumonia. The chief remedy for all the forms is quinine, in doses of 2-12 grs. every two hours or oftener. ('Amer. Journ. of Obstetrics,' 1873.)

Zweifel has made investigations as to the action upon the fœtus by chloroform administered to the mother during labour ('Berlin Klin. Wochens.,' xxi, 1874). He accidentally noticed that the breath of a child whose mother had been delivered under chloroform had a strong odour of it; he first examined the placenta and found that an appreciable quantity of chloroform could be obtained; but as this might be said to be due to the bloody clots adherent to it, he examined the urine passed by children soon after birth, both when the mother had been under the influence of chloroform and when it had not been administered; and found in the first case that Fehling's solution was in every case reduced by it. From these facts he thinks we may conclude that chloroform imbibed by the mother passes into the circulatory system of the fœtus.

Dr. A. Seeligmuller writes on the paralyses which are dependent on the birth of the child ('Berlin Klin. Wochenschr.,' Nos. 40 and 41, 1874). He first runs over the history of the subject and analyses the cases collected by various authors, Duchenne in particular. The patho-

logical facts are few. Only one autopsy by Danyau (quoted by Duchenne) is known. Fritsch discusses a case where a paralysis of the arm disappeared at the same time that a hæmatoma situated at the lower border of the sterno-mastoid muscle. From this we may infer that the paralysis was due exclusively to the pressure exercised by the effusion of blood. These obstetrical paralyses are either temporary or permanent. They most commonly occur in the face and upper limbs or on one side or on both. Paralyses of the arm, which are much more frequent than the others, are especially observed after difficult breech cases. They are either simple or complicated. The principal complications met with, which may at times be unnoticed, are the separation of the epiphysis of the scapula, and of the humerus, fractures of the clavicle, of the humerus, of the scapula, dislocations of the head of the humerus, of the sternal end of the clavicle or of one of the bones of the fore-arm. In simple paralysis of the upper extremity, the following is nearly always the position of the paralysed limb. The arm hangs immovable by the side of the body, the head of the humerus is strongly rotated inwards, the triceps projects in front, and the hand is greatly pronated, turned outwards. In the most commonly found position of the limb (moderate flexion at the elbow), instead of the radial border and the thumb being in front and uppermost, the ulnar side and the little finger are so turned. Also, provided the fingers retain their mobility, the functions of the hand are considerably impaired. This extreme rotation of the head of the humerus and the abnormal position resulting from it may persist through life. This is due to the paralysis of the external rotators, the infra-spinatus muscle chiefly, which is supplied by the subscapular nerve, as may be shown by faradisation. The very superficial situation of this muscle and its nerve exposes them to pressure against the subjacent bone. Other muscles may be paralysed: the deltoid and the flexors of the fore-arm, the biceps and coraco-brachialis. As a rule the cutaneous sensibility is intact. These paralyses may be complicated, and this is not perceived if the complication is slight. A severe complication considerably modifies the typical form of the paralysed extremity. Thus fractures cause a shortening and an arrest of development of the clavicle or of the humerus, and so alter the position of these bones that a permanent deformity results. The rotation inwards of the humerus may be exaggerated by a fracture of the clavicle, or a luxation inwards of the head of the radius increases the deformity of the fore-arm and the functional incapacity of the hand. In such cases as these there is most often anæsthesia. The prognosis is bad in proportion to the age of the child, on account of the atrophy of the muscle. Recourse should be had early to the methodical use of faradisation. In facial paralyses we should not wait for nature to cure more than a month, nor should we wait longer for paralysis of the arm: if there is also in these cases rotation inwards, besides the faradisation of the infra-spinatus muscle, we should practise passive rotation of the humerus outwards. The paper terminates with the relation of six cases he has observed.

Dr. Lavirotte writing on the viability of infants born before term ('Lyon Méd.,' April, 1873) says it is not on the external signs alone

that we must rely for the proof of viability. The functions of internal organs afford more sure data: as the condition of the respiratory organs to sufficiently vivify the blood, and the acts relating to digestion from suckling to defecation, so the way in which the child takes its food and the motions should be examined before coming to a conclusion.

Dr. More Madden discusses the question of the early viability of the fœtus in premature deliveries ('Obst. Journ.,' May, 1873). He alludes to the legal signification of the term "born alive" in various countries; according to his view, every infant that enters the world alive and free from any disease or malformation, which must of necessity produce its immediate death, is viable at whatever period of gestation delivery may occur, or however short its term of extra-uterine life. After referring to the difficulties in determining the earliest period at which gestation may terminate in a viable child, he quotes several instances from various sources, in which a living child was born at a very early period of gestation, even as early as the fourth month and a half.

Dr. Charles H. Carter exhibited a fœtus ('Obst. Soc. Trans.,' 1874) born 172 days after marriage; it weighed 1 lb. 6 oz., was 12 inches long. of a dark red colour, with abundant hair on the head and down on the cheeks. It cried loudly several times, passed meconium of a greenish-black colour and urine; it lived for 21 hours. From the post-mortem-examination the fœtus was proved to be about six months old.

Dr. Willis E. Ford writes on the diagnosis of the sex of the fœtus in utero ('The New York Medical Record,' Dec. 1873).

Dr. Matthews Duncan, in a paper read before the British Medical Association, 1873, on a digital impression produced by the accoucheur in the cranium of a child during birth, gives the history of a case in which, while producing artificial rotation of the head in a case of narrow pelvic outlet, he made with his finger an impression in the parietal bone to the depth of about half the thickness of the finger. The result was slight, short, but very frequently repeated epileptiform seizures, which lasted for some time after the impression had disappeared, and which at first were gradually modified, and were afterwards replaced by slightly awkward movements, somewhat choreic in appearance.

Dr. Cieslewicz in an inaugural dissertation on injuries of the fœtus by the accoucheur, has collected from literature and from the records of the hospital at Halle forty cases of fracture, fissure, contusion of nerves, laceration of muscles, separation of epiphyses, &c., occurring to the fœtus as the result of interference in labour. Among the cases are two of rupture of the longitudinal sinus. In the first the delivery was effected easily by the forceps; in the other the child was born, after a labour of 24 hours' duration, without instrumental aid. ('Centralbl. f. die Medecin Wissensch,,' July, 1873.)

Faschender relates ('Berl. Klin. Wochenschr.,' 25, 1873) a case of extravasation of blood into the neck of a new-born child. The child was delivered by turning, the pelvis being contracted. Four hours after birth the child was convulsed, an hour later a doughy swelling of the size of a hen's egg, bluish in colour, showed itself over the right sterno-clavicular articulation. The right arm was paralysed, the head drawn

over to the left; cold dressings were applied; it diminished gradually, the arm regained its power, but the head remained distorted. The extravasation was due to tearing the muscles during extraction.

Dr. A. Peuch writes on hæmorrhage in the newly born and children at the breast. ('Gazette Obstetricale,' 1874.)

Dr. Hayes writes on fatty degeneration of the heart in children. 'Obst. Journ.,' Aug. 1874.)

Dr. Stephenson read a paper before the Medico-Chirurgical Soc. of Edinburgh, July, 1874, on the eczematous eruptions and eczematous asthma of childhood. ('Obstetrical Journ.,' Aug. 1874.)

# REPORT

ON

# MEDICAL JURISPRUDENCE.

BY

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## Poisons.

*Phosphorus.*—Dr. Andant,[1] of Dax, has published a prize thesis on poisoning by phosphorus in which the various theories relative to the mode in which that poison acts are discussed, and the various kinds of treatment that have been adopted are detailed. Preference is given to oil of turpentine, and several striking recoveries under this method of treatment are detailed.

Dr. George Wegner[2] has experimented with phosphorus upon animals, and finds even such small doses of phosphorus as produce no poisonous action upon the organism may excite osteo-plastic processes to greater energy. Hence arises a needful caution in the use of phosphorus as a remedy.

A committee of the Society of Legal Medicine in Paris[3] has reported as to whether in the absence of any trace of unoxidized phosphorus in suspected matters, and of the characteristic morbid or post-mortem appearances, such as the fatty degeneration of the liver, it may be concluded from a supposed abnormal quantity of phosphoric acid or ammonio-magnesium phosphate in the articles submitted to analysis, that there has been phosphorus poisoning. The committee agree with Tardieu and Roussin that the mere presence of phosphoric acid proves nothing, and say that, having regard to the variable proportion of phosphorus in the chief articles of dietary, the quantity of phosphorus found in suspected matters on analysis is not a conclusive proof that there has been poisoning by phosphorus; nor that the quantity of ammonio-magnesium phosphate in such matters can be regarded as affording

[1] 'Ann. d'Hyg.,' t. xxx, p. 397.
[2] 'Virchow's Archiv,' lv, p. 11.
[3] 'Ann. d'Hyg.,' xlii, p. 61.

proof of phosphorus poisoning. With these conclusions, we doubt not, English medical jurists will concur.

*Arsenic.*—The annual returns received at the 'Mining Record' office show that 5449 tons of arsenic were produced in England in the year 1873. More than a third of it came from the Devon Great Consols Mine. The Commissioners who have been for some years inquiring into the pollution of rivers state[1] that at this mine the general drainage from the dressing-floors and the tanks in which the copper is precipitated was found upon analysis of samples collected by them to contain a very much larger proportion of arsenic than the maximum they would allow upon admission into any stream—no less, indeed, than 0·42 grain per gallon of water, their suggested standard permitting only 0·035 part; but this drainage is not discharged directly into the Tamar, but is first mixed with a very large volume of water used in the mine for power only. At this time the mundic or arsenical pyrites is utilised for the manufacture of arsenious acid. It is roasted in a current of air, and thereby converted into marketable arsenious acid, and of this, at the time of the Commissioners' visit of inspection, as much as 165 tons—sometimes 200 tons—were, as they are informed, being sold in a month. They regard it as a startling reflection that, even at the lower rate of sale, there would leave this single mine every month a quantity of white arsenic sufficient to destroy the lives of more than 500 millions of human beings. The Commissioners saw stored in the warehouses of the mine, ready packed for sale, a quantity of white arsenic probably sufficient to destroy every living animal upon the face of the earth. They add that it is perhaps still more startling to reflect that there is at present no efficient law to prevent many fold this amount of this deadly material from being cast every month into the rivers and watercourses of this country; not, it is true, to expend its poisonous energy at once, for the mundic is insoluble in water, but, by its slow decomposition, to render rivers so treated poisonous and uninhabitable for fish for many generations. The Commissioners consider that in the case of mines upon which arsenic is actually manufactured it is only reasonable that (as is now the case with the retail sale of this article) the manufacture of a poison so virulent should be subject to special State supervision, and they submit that an officer should be empowered to require that the best practical means be taken, not only to prevent the poisoning of the air by the volatilization of the arsenic, but also to hinder the access of the poison to running water. They are driven to this special recommendation because it is impossible to prevent altogether the occurrence of the poison in the effluent water of such mines, and there is no practicable method of removing it from the water once contaminated so as to bring the proportion below the maximum named in their proposed table of standards of impurity which may be allowed in effluent mine water admitted into rivers and streams. A single officer would probably do to inspect all such establishments in the United Kingdom.

*Chromic arsenical poisoning.*—Malmsten[2] relates a highly interesting

[1] 'Fifth Rep. of the River Pollution Commissioners' (Blue Book).
[2] 'Hygiea,' 1873; 'Nord. Med. Arch.,' 1874.

case of chromic arsenical poisoning in which nervous symptoms were prominent. The case has been placed before the British profession by Dr. Henry.[1]

A labourer, æt. 26, had suffered three years ago from pneumonia, which confined him to bed for a long time. When he was able to get up his feet would not support him. Sensation was diminished in the feet and legs. He had trembling of the fingers, and occasional creeping sensations in the hands and feet. He could not support or lift any rather heavy object without letting it fall. After eighteen weeks, sensation was entirely lost in the soles of the feet, and greatly diminished in the hands. The organs of sense were normal. He recovered under treatment. In January, 1873, after exposure to cold, he had an attack of vomiting for three or four days; he recovered from this, but three weeks after had a similar attack which lasted six days. After his recovery he had numbness in the hands, especially in the tips of the fingers, and also in the feet, where cutting pains were sometimes felt. There was stiffness of the ankles and knee-joints. He never had syphilis, and lived under good hygienic influences. On March 14th he was admitted in hospital. His muscular structure was then lax, his gait unsteady; his hands, feet, fingers, and toes could be moved freely. Sensation was somewhat diminished in the soles of the feet and in the palms of the hands, and electro-muscular contractility remarkably so; in the legs and forearms to a less degree. The strength of the hands was diminished. The intellect was unimpaired, and the sense-organs were normal. His condition improved under the use of potassium, iodide, and galvanism, and on May 10th he was discharged cured.

Arsenical poisoning was suspected, and he at length admitted that he had taken arsenic (? arsenious acid) when he felt himself indisposed, after which his illness appeared.[2]

*Arsenical wall-papers.*—H. Fleck[3] has found that paper-hangings coloured with copper arsenite evolves arsenetted hydrogen, so that they may be dangerous not only from the dust mechanically detached from them, but also from the formation of a highly dangerous volatile compound. The author is also of opinion that the arsenical symptoms observed when paper-hangings coloured by means of aniline pigments are used, may be due to the decomposition by means of organic matters of the small quantities of arsenical compounds with which aniline colours are often contaminated, and the consequential evolution of arsenetted hydrogen.

*Arsenetted hydrogen.*—The sad history is given,[4] and the post-mortem details described, of poisoning by means of arsenetted hydrogen, generated by the action of impure hydrochloric acid upon an impure

[1] 'Lond. Med. Rec.,' ii, p. 441.

[2] I have myself observed progressive paralysis of motion and sensation beginning at the feet and extending upwards till the lower respiratory muscles were affected, as a consequence of the use of arsenious acid. The patient recovered.—T. S.

[3] 'Zeitschr. f. Biologie,' viii, p. 424; 'Vrtljhrsschr. f. Gerichtl. Med.,' xviii, p. 391.

[4] 'Vrtljhrsschr. f. Gerichtl. Med.,' xviii, p. 267.

alloy of lead, silver, and zinc. Dr. Frost, the narrator, states that of nine persons who were poisoned by the gas, three died.

*Lead.*—Drs. Bergeron and l'Hôte relate some remarkable cases of lead poisoning. Twenty-six persons suffered from what was supposed to be biliary enteric fever, but, two of the patients dying, an examination revealed lead-poisoning. The drinking water was highly charged with lead, probably due to the large quantity of soluble chlorides in it acting upon a very old leaden pipe through which the water passed.

*Poisoning by chrome yellow.*—Dr. von Linstow[1] relates two interesting fatal cases of poisoning by chrome yellow (lead chromate). Two boys, æt. 3½ and 1¾ years respectively, sucked some sweetmeats coloured with chrome yellow at 9—11 a.m. The quantity of the pigment taken by each child could not have exceeded one sixth of a grain. At 2—3 p.m. on the same day, after dinner, the children were seized with vomiting and great prostration. The vomiting persisted till 8 p.m., when it became less violent. There was great flushing of the face, high temperature (103° Fahr. in the axillæ), great thirst, and disturbance of the sensorium. The breath was very offensive, and swallowing was difficult. The younger child died in forty-eight hours, and the elder five days after partaking of the poisonous sweetmeats.

The post-mortem examination of the viscera of the younger child showed swelling of the gastric mucous membrane, especially towards the cardiac end. It also exhibited red points, and these were noted in the duodenum. The liver had undergone fatty degeneration. In the elder child, also, the liver had undergone fatty degeneration. The mucous membrane of the stomach and duodenum was softened, easily detached, and the duodenum was highly ingested with blood. There was hyperæmia of the brain and its meninges, commencing icterus, hyperæmia of the kidneys, with purulent affections and softened spleen. These are appearances which are commonly observed after poisoning by such corrosive (?) poisons as phosphorus, arsenic, and antimony.

No poison was detected in either body, except a trace of copper in each, and this circumstance is not unusual.

Dr. von Linstow draws attention to the highly corrosive and poisonous character of lead chromate, and states that it is as deadly a poison as either phosphorus or arsenic. The cases he relates are of great interest, as a case of poisoning by chrome yellow pure and simple is perhaps unique. Sweetmeats coloured with lead chromate have been recently sold in England.

*Zinc.*—Dr. L. Popoff[2] communicates a highly interesting case of chronic poisoning by the vapours of zinc oxide observed by him in the *clinique* of Prof. Botkin in St. Petersburg. The patient was a worker in metals. When admitted into hospital he was feeble, atrophied, and suffered from a peculiar form of paralysis. The liver was a little enlarged; the spleen normal in size. He suffered habitually three or four hours after meals from eructation, heartburn, and vomiting of a sour

[1] 'Vrtljhrsschr. f. Gerichtl. Med.,' xx, p. 60.
[2] 'Berl. Klin. Wochenschr.,' ix, p. 72.

fluid, containing lactic and butyric acids, and abundance of sarcinæ ventriculi. For twelve years he had worked with bronze, taking care, however, to use a covering for the mouth and nose. During the summer, with open doors and windows, he suffered but little; and in winter, whilst working in a more confined atmosphere, he suffered from headache, coldness and cramps of the extremities, nausea, vomiting, and, at times, diarrhœa. The diagnosis was confirmed by the detection of zinc in the urine, which was free from albumen and sugar. Under treatment by rhubarb and enemata of water, and subsequently the internal use of chlorine water and enemata of dextrine, the zinc disappeared from the urine and the patient recovered.

*Copper.*—Dr. Bailly[1] draws attention to what he terms a new pathognomonic sign of copper poisoning, and one which he asserts is never absent from those who are suffering from the pathological effects of the metal. It consists in a bluish-green line on the edge of the gums. Dr. Clapton has, however, long ago drawn attention in this country to the copper line on the gums. Its re-discovery by Dr. Bailly adds, nevertheless, to the value of it as a pathognomonic sign of copper poisoning.

M. Bucquay[2] also treats of the same subject.

*Alum.*—Dr. Hicquet[3] relates a remarkable and fatal case of poisoning by burnt alum. A man 57 years of age, suffering from some gastric trouble, swallowed about an ounce of alum dissolved in water, in mistake for Epsom salts. He immediately felt a sensation of constriction and burning in the mouth, fauces, and stomach. Incessant nausea and vomiting of sanguinolent fluid followed, with constipation, extreme malaise, intolerable pain, small quick pulse, hurried respiration. The intelligence was intact. The symptoms were at first attributed to an overdose of magnesium sulphate, and the treatment consisted in the administration of lemonade and strong coffee, cataplasms to the belly, and castor-oil enemata. The patient died in collapse eight hours after taking the alum.

The section revealed a softened state of the mucous membrane of the mouth, pharynx, and œsophagus, which were covered with a yellowish-white coating, and the epidermis could be detached with facility. The tongue and uvula were swollen. Blood was effused at the upper part of the trachea and œsophagus, in front of the thyroid cartilage. The whole peritoneum was inflamed, and contained a brownish serum. The omentum, stomach, and intestines were injected, except the duodenum, which was thickened, grey, and retracted. There was an exudation on the peritoneal surface of the liver. The kidneys were highly injected; the bladder empty. The substance of the lungs was healthy, but the pleura contained much sanguinolent serum. On opening the stomach its interior was seen to be of a greyish colour, the veins distended with dark blood, as if acted upon by an acid. The mucous coat was grey, softened, disorganized, and puckered up towards the pylorus. The contents of the stomach attacked the scalpel, and contained a grey

1 'L'Union Méd.,' xvii, p. 61.
2 Ib., xvii, p. 104.
3 'Ann. d'Hyg.,' t. xxxix, p. 192.

powder. Alum was found in abundance in the stomach, and had probably been taken in the form of burnt alum, so that the dose of one ounce would correspond to two ounces of crystallised potash alum.

Only one case of fatal poisoning by alum has been previously recorded, and the symptoms were not noted.

The poisonous nature of alum has even been doubted, whilst others have attributed its toxic qualities to the acid properties of the salt, and have considered that it acts like diluted sulphuric acid.

*Nitrate of potassium.*—Dr. Mouton,[1] of Algiers, details an interesting and fatal case of poisoning by saltpetre. Death occurred from an exquisite form of asphyxia. The dose of the salt taken was one ounce. It must not be forgotten, however, that half this quantity has proved fatal to an adult.

*Osmium.*—The deleterious action of osmic acid and of the osmium compounds generally was first noticed by M. Fremy, and M. Sainté-Claire Deville was seized with persistent nervous asthma when working with osmic acid. M. Debray and M. Julien Clément were also affected by it; the former suffering from some affection of the eyes, the latter being troubled with an obstinate cutaneous affection.

Another case of supposed poisoning, and a fatal one, is related.[2] A perfectly healthy man, æt. 30, with no history of syphilis, was taken into M. Sainté-Claire Deville's laboratory, where he was engaged daily in handling pieces of the rarer metals, osmium, iridium, and platinum, and in the preparation of the barium salt of osmic acid. He was very soon affected with pain in the eyes, heavy sleep, and nightmare. In a few days an extensive papular eruption appeared on the face, forearm, and sides of the hands. Dyspepsia, melænic diarrhœa, headache, nausea (but not vomiting), rigors, cough, and dyspnœa followed. At one time the patient was almost in a state of asphyxia, and his temperature was 104° Fahr., which was maintained for eight days after his admission into hospital, where he died. The urine contained a large quantity of albumen, which did not diminish under treatment, and there was extensive broncho-pneumonia. On post-mortem examination there was found to be extensive pneumonia, and in one lung a gangrenous cavity. The kidneys showed the signs of acute Bright's disease. The stomach was considerably inflamed along the greater curvature. Although M. Raymond believes that this was an undoubted case of chronic poisoning by osmium compounds, this opinion must be received with considerable reservation. The pneumonia and kidney disease might have been quite independent of the action of osmium. M. Personne could detect no trace of osmium in the viscera.

*Poisonous colours.*—Renewed attention[3] is directed to the dangers attending the use of poisonous pigments. Woollen stuffs of a blue-green colour with black stripes were found to produce itching and eczema of the hands of the dressmakers. This was due to the presence of picric and arsenic acids in the dye. The sea-green colour of some alpacas has been proved to consist of chromium arsenate.

[1] 'L'Union,' 1873, 38; 'Schmidt's Jahrb.,' clviii, p. 242.
[2] 'Le Progrès Méd.,' 1874, June 24th; 'Lond. Med. Rec.,' ii, p. 622.
[3] 'Ann. d'Hyg.,' t. xxxix, p. 431.

Dangers attend the use of phenyl colours chiefly composed of rosalic acid, coralline, and azuline. *Rosalic acid*, when pure, is innocuous. Accidents have, however, attended its application internally and externally, and it has then been found to be contaminated with phenol (carbolic acid), from which it is prepared. Commercial rosalic acid is seldom free from phenol. It is chiefly used for the preparation of coralline. (The term rosalic acid was first given to a red body existing in coal-tar, and was subsequently employed to designate all the red compounds obtained from phenol by various reagents.—Ed.) Considerable discrepancies exist as to the effects of pure aniline or *coralline*. Tardieu regards it as poisonous, whilst Eulenburg and Vohl regard it as innocuous. Its alleged poisonous effects may be accounted for thus:—During the manufacture of coralline from phenol by the action of ammonia, vapours of aniline are disengaged, and these may affect the workmen engaged in its manufacture. Phenol is also left in the commercial coralline as an impurity, and this irritates the skin when kept long in contact with it, produces papules, pustules, and boils, but not vesicles. For fixing the dye upon woollens and mixed tissues sodium arsenite is employed, and this, when retained by the stuff, may produce vesicles and desquamation of the cuticle. The use of arsenical preparation in the manufacture of aniline and phenol dyes is very frequent. *Azuline* is a blue dye obtained by heating aniline with rosilic acid or coralline. When pure it is innocuous, but it may be contaminated with phenol or with aniline. Alum is used as a mordant. *Coralline yellow* is similar to coralline, and is obtained by the same means. Another yellow dye, obtained by heating phenol with arsenic acid, is itself poisonous, and still more so if the arsenic acid be not thoroughly removed in the manufacture. It is used for dyeing yellows, reds, and browns. *Picric acid* is of course poisonous, but is used without a mordant. Picramic acid is obtained by reducing picric acid, or from aloes by the action of nitric acid. Its internal use produces diarrhœa when given in sufficient dose, but its prolonged ingestion induces symptoms of poisoning by picric acid, and then this latter substance can be detected in the stomach and liver.

Professor Marchi[1] has drawn the attention of the Florentine Academy of Medicine to the dangers attending the coloration of wines, liqueurs, &c., with fuchsin (magenta) in lieu of cochineal. Magenta, as is well known, is often largely contaminated with arsenic derived from the sodium arseniate used in the manufacture of the pigment. Marchi has found as much as 20 per cent. of arsenic (? the metal) in specimens of commercial magenta. Since so much as three fourths of a grain of magenta may be used for colouring a bottle of wine, and this quantity of colouring matter may contain from one seventh to one sixth of a grain of arsenic, the danger attending the use of magenta is very real. The editor of this portion of the Year Book has himself detected arsenic in common sweetmeats coloured with a trace only of magenta.

*Aniline Hydrochlorate*.—M. Lallier[2] draws attention to the dangerous properties of this substance, even when used only as an external application in skin diseases. The substance is readily absorbed and

[1] 'Vrtljhrsschr f. Gerichtl. Med.,' xviii, p. 162.
[2] 'Med. Times and Gaz.,' 1873, i, p. 660.

produces cyanic appearances. It destroys the hæmoglobin of the red blood-corpuscles.

*General action of the alkaloids.*—Dr. J. M. Rossbach[1] has made some interesting but incomplete experiments upon the general action of the alkaloids. The particular points under investigation are the action of alkaloids upon hæmoglobin and the albuminates, and the influence of the alkaloids upon the peptinization of nitrogenous food.

*Strychnia.*—Dr. Jochelsohn[2] writes on the proposal to treat poisoning by strychine by means of artificial respiration. Leube had previously proposed this plan of treatment, and his observations were confirmed by those of Brown-Séquard; but Rossbach was unable to get the same results as Leube. Jochelsohn now finds, on repeating the experiments of Leube and Rossbach, that strychine does not destroy life by paralysing the muscular coats of the vessels, as Leube supposed; but that it paralyses the cord, and deprives the albumen in the body of its power of absorbing oxygen and forming peptones. The ability of the blood to give off carbonic acid is thus lessened, and muscular irritability is diminished. He does not think that the alkaloid is excreted by or destroyed in the lungs, and he has not noted any diminished susceptibility of animals to the influence of the poison after its repeated administration. It seems to be less rapidly absorbed from the subcutaneous areolar tissue than from the stomach. Artificial respiration does not prevent convulsions following a dose of strychine, nor ever delay them; except when the poison is injected subcutaneously, and then the spasms are only delayed and not prevented. Since small doses of the alkaloid merely increase the reflex excitability of rabbits, the author is of opinion that Leube was misled by merely taking the weight of the animal into consideration, and not its strength and constitution.

*Opium.*—Dr. F. A. Falck,[3] of Marburg, has investigated the actions of hydrocotarnine, a base discovered by Hesse and supposed to form an essential constituent of opium. He finds that hydrocotarnine produces two forms of intoxication, a tetanic and a narcotic or soporific. In both forms of intoxication there is a preliminary stage of excitement, with tremors and dilated pupils. This stage may be followed by tetanus and then by an adynamic stage during which the animal appears as if dead; whilst before death actually supervenes the pupils contract. Or, the preliminary stage may be succeeded by a narcotic one, with sinking of the head, widely dilated pupils, and intercurrent convulsive movements. This passes into an adynamic stage with widely dilated pupils ending in death. In the tetanic form of intoxication the temperature of the body rises, whilst in the narcotic the temperature sinks.

It would appear from Dr. Falck's experiments that, in frogs at least, hydrocotarnine acts as an antidote to muscarine, and in a similar manner to atropine.

1 'Pharm. Untersuch. Würzburg,' 1874, p. 168; 'Schmidt's Jahrb.,' clx, p. 9; xiii, p. 126.
2 'Verhandl. d. Physik. Med. Geselsch. Würzburg.,' v, p. 107.
3 'Vrtljrsschr. f. Gerichtl. Med.,' 1873, p. 49.

*Morphine.*—Dr. Ebertz[1] relates an interesting case of fatal poisoning of an adult by 3·85 grains of hydrochlorate of morphine.

*Camphor.*—Dr. Klingelhöffer[2] and Dr. Edward Pollack[3] both relate instructive cases of poisoning by camphor. The case related by Dr. Klingelhöffer was that of a strong healthy woman who swallowed more than 30 grains of the drug suspended in water. She was immediately seized with giddiness, which increased. The drinking of some coffee induced vomiting. Headache followed, with burning at the epigastrium, eructations, thirst, and formication of the extremities. Six hours after taking the camphor the patient was found sitting up, with total loss of appetite, great thirst, eructations possessing a powerful odour of the drug. The face was pale; the head and extremities cold. Pulse 90-100, small, and irregular. The patient drank freely, and passed a large quantity of urine. She walked with difficulty. At one time she had tremor affecting the whole body, and when this passed off, there were constant movements of the hands. The treatment consisted of cold applications to the head, warmth to the feet, abundant ingestion of water, and laxative medicines and enemata. Twenty-one and a half hours after the administration of the poison she was convalescing rapidly, though she had slept but one hour. There had been vomiting and free action of the bowels. There was still an uneasy sensation at the back of the head, and the breath smelt slightly of camphor. The patient made a rapid recovery.

Dr. Pollack's patient, a woman, had taken, with the intention of preventing pregnancy, two tablespoonfuls of camphor, moistened with alcohol and water. She quickly fainted. When first seen by the relator, she was lying in bed, with the hands moving restlessly to and fro, the face very pallid, the eyes glazed, the whole muscular system rigid, and there were cramps in the lower extremities. The pulse was 88, full and powerful. Temperature 101·1° Fahr. The breath had the odour of the drug, and there were frequent camphorous eructations. There was vomiting. The patient was quite conscious. The voice was faint. She complained of headache, singing in the ears, giddiness, weight at the chest, fulness at the epigastrium, and tingling of the lower extremities. There was thirst, and she drank freely of milk. The treatment consisted of cold to the head, aperient enemata, wine, and coffee. Sleep was thereby speedily induced, with free diaphoresis and diuresis. The urine, but not the perspiration, smelt strongly of camphor. The patient made a speedy recovery, and the poison had no influence on her pregnancy.

*Alcohol.*—Cases of acute alcoholic poisoning are rare enough to make the following of interest.[4] A man, aged 21 years, whilst passing through the street, observed another man spill three jars of brandy, whisky, and rum, respectively, into the gutter. He dropped on his knees, and drank freely of the spirits. In five minutes he was observed to stagger, and in an hour he was taken home insensible. He was admitted into hos-

1 'Vrtljhrsschr. f. Gerichtl. Med.,' xviii, p. 280.
2 'Berl. Klin. Wchnschr.,' 1873, p. 414.
3 'Wien. Med. Pres.,' 1874, p. 258.
4 'Lancet,' 1875, i, p. 13.

pital three hours after taking the spirits. He was then comatose, and livid, with frothy mucus oozing from the mouth and nostrils. The pulse was fluttering, the skin cold and clammy, the pupils unequal and inactive.

By means of the stomach-pump enough spirit was withdrawn to make "more than a gallon of strong brandy and water." He never rallied, spite of treatment, and died nineteen hours after his debauch.

At the *post-mortem* examination the stomach was found slightly congested at its cardiac end. The lungs were intensely congested. The bronchial tubes were intensely congested and filled with sanious fluid. There was merely slight congestion of the membranes of the brain; the ventricles of the brain were perfectly dry, and the substance of the brain of natural appearance. The other organs were congested, but otherwise healthy.

*Petroleum Oil.*—Two cases of poisoning by petroleum oils are published by M. Chevallier,[1] and one case of asphyxia from the inhalation of the vapours given off from a half-extinguished paraffin lamp. In the case where the oil was swallowed, tetanic convulsions were a prominent symptom.

*Nitrous oxide.*—A case of death from the administration of nitrous oxide as an anæsthetic is related.[2] A dentist gave the gas to a lady, at her own desire, in order to annul pain during the extraction of a molar tooth. A physician carefully examined her before the operation, and gave it as his opinion that there was nothing to preclude the use of the gas. The nitrous oxide was pure; it had been safely used for other patients from the same condenser, and an apparatus was used for securing the removal of the expired air. The total quantity administered was about six gallons. Soon after the commencement of the inhalation the pulse became rapid and less full. The patient was then sensible, and the apparatus was removed. The operation was now commenced, but the lady insisted on having more of the gas. She took it again, insensibility supervened, and the operation was completed. Immediately afterwards the face became livid, the features began to swell, and the tongue protruded. Efforts were made to restore her, but she did not recover from her insensibility. She breathed two or three times, and the pulse then ceased. There was no autopsy.

*Poisoning by Sewer-gases.*—Dr. L. Blumenstock[3] details four very interesting cases of death from the inhalation of sewer and privy gases, and collates the post-mortem appearances with the well-known and almost unique accounts given by Casper in his 'Handbook of Forensic Medicine.' Blumenstock considers that the post-mortem appearances are characteristic of this form of death, and are by no means to be confounded with those observed after death from simple suffocation: that indeed, as will be generally admitted, the death is caused by a veritable poisoning process. The special post-mortem appearances observed in all the cases agree closely with those noted by Casper, and

[1] 'Ann. d'Hyg.,' xxxix, p. 56.
[2] 'Lancet,' 1873, i, p. 178.
[3] 'Vrtljhrsschr. f. Gerichtl. Med.,' xviii, p. 295.

were as follows: (1.) Rapid putrefaction commencing at the upper part of the body. Putrefaction commences earlier, and proceeds more rapidly, than even in a dead body simply and freely exposed to air. The author enlarges upon this point. (2.) A peculiar condition of the blood. This is fluid, and of various tints, varying from a dusky or even dark cherry-red hue to an inky-black colour; and the corpuscles speedily disappear. The fluidity and the dark colour of the blood are attributed to the decomposition of hæmoglobin by the sulphuretted hydrogen present in sewer gases, and the formation of ferrous sulphide which colours the blood black. It is pointed out that the shrivelling up and disappearance of the blood-corpuscles observed by the author and by others in poisoning by sewer gases has not been seen by Demarquay, Ackermann, and Schauenstein, in poisoning by sulphuretted hydrogen gas. (3.) The heart was invariably collapsed and empty; and so also were the coronary veins. (4.) Hyperæmia of certain organs—as of the spleen, lungs, and kidneys—was observed.

*Scorpion Venom.*—In a recent memoir Dr. Jousset de Bellesme[1] records researches on the venom of the scorpion, and a full abstract of his experiments has been laid before the medical profession of this country by Mr. J. C. Galton.[2] The research was carried out with the venom of the only two kinds of scorpion found in France, the small *Scorpio Europæus*, which is never dangerous; and the *S. occitanus*, which produces dangerous punctures. The three following points were established: 1. The poison of *Scorpio occitanus* acts directly upon the red corpuscles of the blood in vertebrated animals. 2. The immediate result of its action is to cause the corpuscles which have been in contact with it to lose the property which they possess, under ordinary conditions, of readily gliding one over the other. 3. In losing this property they become agglutinated together, and adherent to corpuscles as yet unaffected, in such wise as to form small masses, which plug the fine capillaries, and thus become a complete obstruction to the circulation. If the quantity of the poison be sufficient to cause a speedy death, this will be brought about through embolism and arrest of the circulation, but if the amount be insufficient, those phenomena will take place which always supervene when some obstacle is introduced into the circulation, *e. g.*, œdema and cellular infiltration. Unfortunately, from the researches of Dr. Bellesme no therapeutical conclusions can be deduced. In France the sting of *S. Europæus* is usually treated with the *Huile de scorpion*, which consists simply of the scorpion itself pickled in olive oil. As the sting is never dangerous, the remedy is always apparently effective. It is, however, like all other known remedies, entirely ineffective as an antidote to the sting of the larger and dangerous *S. occitanus*.

*Indian Snake Poison.*—Drs. Lauder Brunton and Fayrer[3] describe in two admirable papers the effects produced by the venom of the Indian snake poisons. The Indian snakes are divided into the colubrine snakes, represented by *Naja tripudians*, *Ophiophagus elaps*, *Bun-*

[1] 'Ann. des Sc. Nat.,' xix.
[2] 'Lond. Med. Rec.,' ii, p. 657.
[3] 'Pr. Roy. Soc.,' xxi, p. 358; xxi, p. 68.

*garus Callophis*, and the *Hydrophidæ*; and the viperine snakes, represented by *Daboia Russellii*, *Echis carinata*, and the *Trimeresuri*.

The general symptoms of poisoning by the cobra are depression, faintness, hurried respiration and exhaustion, lethargy, unconsciousness, nausea, and vomiting. As the poisoning proceeds, paralysis appears sometimes affecting the hind legs first and seeming to creep up the body, and sometimes affecting the whole animal nearly at the same time. There is loss of co-ordinating power of the muscles of locomotion. Hæmorrhage, relaxation of the sphincters, and involuntary evacuations, not unfrequently of a sanguineous or muco-sanguineous character, often precede death, and are generally accompanied by convulsions.

These symptoms clearly point to paralysis either of the nervous centres or of the peripheral nerves. The symptoms produced by the poison of the *Daboia*, a viperine snake, are similar. The authors think that the peripheral terminations of the motor nerves are actually paralysed by the cobra poison. In many respects cobra poison agrees very closely with conia. This alkaloid, as Crum Brown and Fraser have shown, often contains a mixture of true conia and methyl-conia. Conia alone paralyses the motor nerves without affecting the spinal cord; but when mixed with methyl-conia, sometimes the one is affected first and sometimes the other. When the dose is small the motor nerves are usually paralysed before the reflex function of the cord; but when the dose is large, the cord is paralysed before the nerves. Methyl-conia also affects both; but a small dose of it paralyses the cord before the nerves, while a large one paralyses them first. The paralysis of the hind legs, often observed in snake-poisoning, is probably partly due to the local action of the poison in the nerves and muscles of the bitten member, and partly to its action on the cord. In this point, cobra venom, when dried, appears to resemble methyl-conia rather than its admixture with conia; but it exercises numerous other actions upon the blood, muscles, &c., which neither of these substances has been shown to do. It is doubtful whether the cerebrum is directly affected by the cobra poison.

Drs. Brunton and Fayrer think that the cobra poison is excreted by the kidneys and mammary glands, and probably also by the salivary glands and mucous membrane of the stomach. They also think it possible that the immunity which poisonous snakes enjoy from the effects of their own poison or that of another species may be due to their powers of excreting the inoculated venom through their own poisonous glands, which are modified salivary (parotid) glands.

Most interesting is the part of the memoir devoted to the means of preventing death from the bites of venomous snakes. In the case of all poisons, snake poison included, there is a dose which is insufficient to kill; and animals may recover from it even after the characteristic symptoms have been distinctly manifested. The real dose of any poison, or the quantity which is actually circulating in the fluids and operating on the tissues of the body, depends on two factors, viz., the rapidity with which it is absorbed, and the rapidity with which it is excreted. If absorption goes on more rapidly than excretion, the

poison accumulates in the blood and exercises its lethal action; while the quantity in actual circulation may be reduced to an infinitesimal amount and deprived of all power for evil if the excretion can keep pace with or go on more rapidly than the absorption. Thus it is that curare kills an animal when introduced into a wound; for the poison is absorbed from the wound more rapidly than it can be excreted by the kidneys. If placed in the stomach curare has usually no apparent action, for it is excreted in the urine as quickly as it is absorbed by the gastric walls. But if absorption be quickened by increasing the dose and giving it on an empty stomach, curare will have the same effect as when it is placed in a wound. A like result is obtained by arresting its excretion, either by ligaturing the renal vessels or extirpating the kidneys. Snake-venom is also poisonous when absorbed by the mucous membrane of the stomach.

When we wish to prevent the accumulation of a poison in the blood, and thus arrest its action, we must either lessen its absorption, quicken its excretion, or combine the two means. In the case of snake-poisoning, as in curare poisoning, the former of these is sufficient; and all the bad effects of the introduction of the poison into a wound may be prevented by applying a ligature between the wound and the heart, and only loosening the bandage occasionally for an instant or two at a time. In this way, only a little of the poison is absorbed each time the ligature is slackened, and this is excreted by the kidneys before another quantity is absorbed. If the poison can be removed from the wound itself by other means, the danger it causes will be sooner over. Our power to quicken excretion is, in most cases, less than to retard absorption; and it is therefore on the latter that we mainly rely in cases of poisoning in general, as well as snake-bites in particular.

The various means of mechanically arresting the introduction of the virus need not be discussed here; its excretion or removal from the organism will alone be dwelt upon. Now, the action of the poison may be of two kinds: 1. It may resemble curare in destroying the power of the nervous system so long as it is present in the blood, but leaving it in a condition to resume its functions as soon as the poison has been removed. 2. Its action may be identical with, or similar to, that of a ferment, decomposing or altering the nervous or muscular tissues *in sitû*, and thus rendering them utterly incapable of ever again performing their functions. If the action of the poison is of the latter kind, no treatment can be expected to be of any avail if the dose has been large; but if it is of the former, we may still entertain a reasonable hope of averting a fatal result, even when the dose of venom has been large. By means of artificial respiration the authors have been enabled to prolong the life of snake-poisoned animals for several hours, but they have not been able to maintain respiration sufficiently long to show whether the muscular and nervous systems regain their function after the excretion of the poison had proceeded far enough. Indeed, they are by no means confident that death may be averted by the combined use of artificial respiration and transfusion, which latter remedy suggests itself as a means of getting

rid of the poisoned blood. All reputed antidotes to the snake-venom were found to be valueless.

The practical results of this investigation is that Dr. Fayrer[1] has asked the Indian Government, in a Minute which he forwarded to the Secretary of State, to appoint a committee of the following gentlemen —Drs. Ewart and Anderson, and Mr. Vincent Richards—to carry on a series of experiments with artificial respiration, which Dr. Fayrer has strong reason to believe will be of great value in snake poisoning. Dr. Fayrer in this Minute states that since his return to London he has, in conjunction with Dr. Lauder Brunton, of St. Bartholomew's Hospital, been making further investigation into the subject of snake poisoning, especially with a view of ascertaining if there be any means of saving life. Although he has not attained that desirable object, he is convinced of the importance of a thorough investigation into the matter being made. He has ascertained, by a long series of experiments, that none of the so-called antidotes possess the virtues or powers attributed to them; but in some experiments which he recently made he found that life may be prolonged for many hours by artificial respiration. In one experiment he kept the heart beating for nine hours after the development of the symptoms of impending death. The heart then failed only from imperfect respiration carried on in the cold. Regarding the action of the poison, Dr. Fayrer thinks there is a strong analogy between the action of snake poison and that of curare, and this fact leads him to hope that artificial respiration may, if carefully and continuously sustained, save life. It is well known that an animal poisoned with curare may, after apparent death for many hours, be restored by artificial respiration and the application of warmth to the body. The poison is eliminated by the excreting organs, and the animal recovers. Curare acts by paralysing the peripheral distributories of the motor nerves, inducting asphyxia, by involving the muscles of respiration in the general paralysis. Cobra poison, Dr. Fayrer thinks, would appear to operate in this manner also, but he fears, though it is by no means certain, that the poison may in addition do irreparable injury to the nerve centres. It is almost impossible for Dr. Fayrer to carry out completely the necessary experiments, owing to the difficulty he experiences in obtaining snake poison. He is, therefore, led strongly to urge on the Indian Government the necessity of a thorough investigation being made in India. Artificial respiration would, perhaps, have to be kept up for hours, or even days, and he suggests that it would be necessary to have some specially constructed apparatus which could be worked by steam. He recommends that his mode of treatment by artificial respiration and warmth should be tried in any cases of snake poisoning in human beings that may come under observation. He wishes distinctly to be understood to mean that the treatment he recommends is at present tentative and experimental, and that he does not recommend it as certain in its effects. The following are the details of the manner in which the investigations are to be conducted. Varying quantities of poison are to be hypodermically injected into dogs, &c., care being taken, for an obvious reason, to avoid large veins. When

[1] 'The Times,' May 2nd, 1873.

the symptoms of poisoning appear, artificial respiration is to be commenced and steadily sustained. At the same time the body is carefully to be kept up to blood heat. The urine is to be drawn at intervals and inoculated into smaller animals, such as pigeons, mice, &c., in order to ascertain if elimination is going on by that channel. Dr. Fayrer believes that whatever the result may be in those cases in which an overwhelming quantity of poison has been injected, there can be no doubt that those cases in which a smaller quantity of poison has been injected, and which, if left to themselves, would end fatally, may, by artificial respiration, &c., be successfully treated. At any rate, Dr. Fayrer's treatment is rational and scientific, and as such is deserving of earnest consideration. It is to be regretted that Dr. Fayrer and his able coadjutor Dr. Brunton are unable to carry on further investigations, owing to the difficulty experienced in obtaining sufficient poison. Dr. Fayrer suggests that, in addition to the recommendations he has already offered, and which have been promulgated in some parts of India, artificial respiration and the application of warmth should be had recourse to.

Mr. Richards, Civil Medical Officer of Balasore, has just completed a second series of experiments on Dr. Fayrer's treatment of snake-poisoning, and has obtained remarkably encouraging results. In one case the heart's action was sustained for 10 hours, though convulsions had set in when he commenced artificial respiration. He was compelled to stop the artificial respiration in this instance for want of assistance. In another case he kept up the heart's action for 24 hours and 35 min. Of this case he says:

"This is, perhaps, the most remarkable case of its kind on record. The dog was, to all appearances, dead when the artificial respiration was commenced. Two hours and a half later convulsive movements were excited by the application of the galvanic current, but at 7 o'clock there was no response, and the body of the dog was cold. At this time the eyes presented a glazed appearance, being perfectly dry. The pupils were dilated, and the heart was beating feebly. Had artificial respiration been now stopped the heart would have ceased to beat almost at once."

At noon the next day the dog appeared as if it would recover. "The eyes had lost the glazed appearance, lachrymation was restored, and there was winking of the lids on dropping water into the eye, attempts at deglutition when water was put into the mouth, and the heart was beating vigorously." It is more than probable that artificial respiration was not perfect, even in this instance, as the nozzle of the bellows was found to be partly filled with some hard substance, which had somewhat impeded the passage of air into the lungs. Mr. Richards thinks, however, that the application of a ligature on the proximal side of the bitten part is of the greatest importance, in order to prevent the absorption—when reaction occurs—of any superabundant poison which may be lying in the tissues about the bitten part. The poison evidently acts primarily on the spinal cord and *medulla oblongata*, and only secondarily on the cerebrum and cerebral ganglia.

It is, of course, a great question whether the paralysing effects of

the poison on the *medulla oblongata* are permanent. Mr. Richards's experiments would appear to indicate that they are not, unless the quantity of poison injected be overwhelming.

### *Detection of Poisons.*

*Free Mineral Acids.*—M. Rabuteau[1] has made an important modification of a method devised by Tardieu and Roussin for the detection and estimation of the amount of free mineral acids in medico-legal analyses. Tardieu and Roussin's process, which is applicable in cases of sulphuric or nitric acid poisoning, consists in neutralisation with quinine, evaporation on the water bath, extraction of the residue with alcohol, and separation of the acid from its combination with quinine by well-known means. This method is, however, inapplicable for the detection of hydrochloric acid, since commercial alcohol dissolves sodium chloride to some extent. Rabuteau obviates this difficulty by using amyl-alcohol instead of ordinary ethyl-alcohol. Amyl-alcohol dissolves the salts which quinine forms with organic and inorganic acids, but leaves the alkaline chlorides undissolved. When it is known that hydrochloric acid is present, benzol may be substituted for amyl-alcohol in the extraction of the residue left by evaporation.

Fr. Mohr[2] has devised two methods of detecting the presence of a free mineral acid in medico-legal research, and in such liquids as vinegar, &c.

The first method consists in the addition of water to pure ferric acetate until the solution is of a pale yellow colour, which is not altered in tint by the subsequent addition of a few drops of potassium sulphocyanide. The addition of a trace of a solution containing a mineral acid (sulphuric, nitric, or hydrochloric) immediately brings out the deep red colour of ferric sulphocyanide. Oxalic acid reacts in a similar manner. Phosphoric acid at first produces a precipitate, but even when the precipitate is redissolved by an excess of the acid the red colour is not produced. Acetic, tartaric, and citric acids do not give this colour reaction.

Mohr's second method is still more delicate. Potassium iodide is mixed with starch-paste and a highly diluted solution of ferric acetate. If no free mineral acid be present, no blue colour is produced. If a drop of a solution of a mineral acid (especially hydrochloric) be added, blue streaks appear in the solution, and in a short time the whole of the mixture acquires a blue colouration from the presence of starch-iodide. Citric and tartaric acids do not give the colour reaction.

Since all sulphates, except those of the alkaloids, are insoluble in alcohol, Mohr advises, for the detection of sulphuric acid, that the solution be evaporated nearly to dryness, and extracted with strong alcohol, on filtering and distilling off the alcohol, a reaction of the solution for a sulphate with a barium salt is conclusive as to the presence of free sulphuric acid.

*Phospo-molybdic acid as a reagent for the separation of the alkaloids*

[1] 'Gaz. de Paris,' 1874, p. 118.

[2] 'Neu. Rep. Pharm.,' xxiii, p. 257; 'Zeitschr. f. Analyt. Chem.,' xiii, p. 321.

*from organic mixtures.*—H. Struve,[1] of Tiflis, in an elaborate paper on toxicological research, speaks very favorably of phospho-molybdic acid —first introduced by Sonnenschein—as a general reagent for the precipitation of the alkaloids.

*Phospho-tungstic acid*, according to C. Scheibler,[2] fulfils the same function as phospho-molybdic acid, and in a satisfactory manner. The precipitates which it gives with the alkaloids are very voluminous.

*Ammonium sulpho-molybdate as a test for the alkaloids.*—J. H. Buckingham[3] remarks that the beautiful blue coloration produced by ammonium sulpho-molybdate with morphine compounds is not characteristic of this alkaloid. The reagent is best prepared by dissolving four grains of ammonium molybdate in a dram of concentrated sulphuric acid by means of heat, and then cooling. The solution must be freshly prepared. It is dropped on to the solid substance to be tested. The reagent gives no colour reaction with quinine, quinidine, cinchonine, asparagine, strychine, atropine, and theine (caffeine), or at most a blue coloration only after some time. Characteristic colours are given with the following solutions:—Santonin, light purple red; menispermine, light yellow; solanine, yellow; veratrine, yellowish green, passing into dark brown and then into dark blue; meconin, light green, passing into light blue; narcotine, yellowish green; codeine, green; phloridzin, dark blue (permanent); salicin, purple red, passing through blue and brownish red into dark blue; morphine, dark red passing through purple red into dark blue; digitalin, crimson, then purple red, and finally dark blue; brucine, brick-red; aconitine, light yellowish brown, passing through purplish red into dark blue; piperine, brownish red, berberine, purplish red; and cubebin, crimson. All the above substances, with the exception of meconin, give as a final result a dark blue liquid. The author says that the reagent is a good one for discriminating between strychine and brucine, and for detecting salicin and phloridzin in quinine.

*Alkaloids.*—MM. Rörsch and Fassbender[4] point out that great care is requisite in applying Stass's method, or Otto's modification of it, for the detection of alkaloids in the dead body. They find that a substance resembling the vegetable alkaloids in its solubility in ether and in its general behaviour to reagents may be extracted from the liver in medico-legal analyses. The fresh liver of an ox yielded by Stass's method a substance which was taken up by ether both from its acid and alkaline solutions, and the body reacted like an alkaloid. Prof. Gonnig also, in investigating a case of poisoning by liver-sausage, obtained a similar substance from a healthy boiled liver.

F. Selmi[5] has made some valuable contributions to toxicological chemistry, not the least of which is a new general method of separating the alkaloids in a pure state from complex organic mixtures. The organic mixture is digested for some hours with alcohol and a little sulphuric

[1] 'Zeitschr. f. Anal. Chem.,' 1873, p. 164.
[2] Ibid., p. 315.
[3] 'Polytechn. Notizblatt.,' 1874, p. 77; 'Zeitschr. f. Anal. Chem.,' 1874, p. 235.
[4] 'Berich. Deut. Chem. Gesellschaft,' Sept. 16, 1874, No. 13.
[5] 'Gazz. Chim. Ital.,' iv, p. i; 'Journ. of Chem. Soc.' [2], xii, p. 607.

acid; it is then filtered, and the residue treated again in the same way. The filtrates are concentrated, again filtered, evaporated to a syrupy consistence, and treated with freshly prepared barium hydrate. After addition of anhydrous baryta and powdered glass the whole is powdered in a mortar, shaken up with pure ether, and the filtrate treated with freshly prepared lead hydrate. By extracting with ether the alkaloid is obtained quite pure. Special information as to the testing for solanine, nicotine, and brucine is given.

R. Schneider[1] points out some extremely interesting colour reactions of the following alkaloids when treated with concentrated sulphuric acid and sugar, care being taken to avoid charring of this latter substance by the acid: morphine, codeine, aconitine, delphinine, chelerythine, and chelidonine. We select the morphine reaction by way of illustration. If a few drops of concentrated sulphuric acid be placed on a porcelain slab, and a few hundredths of a grain of mixture of morphine with six or eight times its weight of sugar be added, the mixture speedily acquires a beautiful purplish-red colour, passing after some time into bluish violet, next into a dirty bluish green, and finally into a dirty yellow. The same play of colours may be hastened by carefully adding a trace of water to the mixture. The reaction succeeds with even 1-600th grain of the alkaloid. To solutions of morphine salts the test is best applied by adding a drop of syrup, and bringing a drop of sulphuric acid near the mixture; by then inclining the vessel, so as to permit the two solutions to intermingle, the play of colours will be seen at the edge of the drop. Codeine behaves in a similar manner.

*Morphine.*—J. Guhl[2] recommends a modification of Stass's process for the separation of morphine from organic mixtures. The acid solution is, as far as possible, deprived of colour by agitation with ether, and is then made alkaline with potassium bicarbonate. The mixture is then gently warmed to expel carbonic acid, cooled, and again shaken with ether as long as the decanted ether leaves a residue on evaporation. The ethereal solution is filtered, evaporated, and the residue washed several times with cold water, and then taken up by boiling alcohol. The filtered and evaporated alcoholic solution furnishes the alkaloid in the form of perfectly white prismatic crystals. The use of a bicarbonated instead of caustic alkali is stated to have the advantage of not imparting a colour to the solution.

*Hydrocyanic acid.*—H. Struve,[3] of Tiflis, has investigated the tests for hydrocyanic acid, with especial reference to the possibility of detecting the acid at periods long after death, and he has further experimented on the supposed fallacy attaching to Liebig's sulphocyanate test from the presence of a sulphocyanate in the saliva, and hence possibly in the stomach, intestines, blood, &c. He finds that Schönbein's guaiacum and sulphate of copper test is incomparably the most delicate, but that no reliance can be placed upon it, for a large number of bodies, belonging to no particular class of substances, produce the same blue coloration

[1] 'Pog. Ann.,' cxlvii, p. 128.
[2] 'Zeitschr. f. Anal. Chem.,' 1874, p. 350.
[3] Ibid., 1873, p. 14.

on paper steeped successively in tincture of guaiacum and a solution of sulphate of copper. Among these are the salts of ammonia.

Next in order of delicacy comes the sulphocyanate test. It is vastly more delicate than the Prussian blue reaction, which indeed often fails when the quantity of poison present is minute. Struve failed to obtain any reaction with ferric chloride after distillation of the acidulated normal viscera, blood, &c., and hence the supposed fallacy attaching to this test already referred is of no importance. He recommends acidulation of the suspected matters with tartaric acid, and distillation. The distillate is to be divided into two portions; one is to be treated with ammonia, evaporated, acidulated, and touched with a solution of ferric chloride. The other portion of the fluid is to be mixed with a drop of ammonium sulphide and a little caustic potash, evaporated, and then treated with ferric chloride as in the other case. If no colouration be produced in the first case, whilst a red colour is produced in the second, the presence of hydrocyanic acid may be averred with certainty. The object of adding caustic potash before evaporation is to convert any sulphocyanate which may be formed into a potash salt, a fixed substance, whilst ammonium sulphocyanate is slightly volatile in the water-bath.

Struve failed to find formic acid among the products of the putrefaction of muscular tissue mixed with potassium cyanide.

*Potassium cyanide.*—In order to detect this substance when mixed with double non-poisonous cyanides (as *e.g.* potassium ferrocyanide), E. Jacquemin[1] dilutes the liquid with water, macerates, filters, neutralises the filtrate with sodium carbonate, boils with sodium hyposulphite, cools, acidulates slightly with hydrochloric acid, and adds ferric chloride, which gives, if a poisonous cyanide be present, the characteristic blood-red coloration due to the formation of ferric sulphocyanate.

Another method recommended is to boil with picric acid, when the characteristic coloration of potassium isopurpurate is produced.

A third mode is to place the liquid in a close vessel, and pass a current of carbonic acid through it. The issuing gas is tested for hydrocyanic acid. Carbonic acid liberates hydrocyanic acid from the potassium cyanides, but not from the double cyanides.

## *Murder.*

*Murder in its medical aspects.*—At the annual conversazione, in 1874, of the West Riding of Yorkshire Lunatic Asylum, Dr. Bucknill gave a remarkable address on the law of murder in its medical aspects,[2] which is well worthy of perusal by all jurists and medical men.

The materials collected by the Parliamentary Committee of 1873 for an amended Bill on homicide contain the following matters of interest to the medical profession: (1) the definition of murder and manslaughter; (2) the difficulty of proving infanticide, and the suggested alteration of the law relating to this; (3) the responsibility of surgeons operating without the consent of a patient; and (4) the plea of insanity.

[1] 'Comp. Rend.,' lxxix, p. 1499.

[2] 'Br. Med. Journ.,' 1874, ii, p. 667; 'Lond. Med. Rec.,' ii, p. 769.

Mr. Fitzjames Stephen gave it as his opinion before the Parliamentary Committee that there are three natural divisions of the subject of homicide: it is murder if you intend to kill the person or if you intend to do the person grievous bodily harm, but it is manslaughter only if you do not intend to do grievous, but only ordinary bodily harm. On this Dr. Bucknill remarks—"This distinction between grievous bodily harm and bodily harm which is not grievous is a question which is invariably left to the jury, and, as such, is one of common sense rather than of law, although it is obvious that it is also one in which common sense must frequently be in need of medical guidance. The last kind of homicide is when proper care is not taken, or skill employed, and death is caused in that way."

It thus appears that the old definition of murder, that it is killing with malice aforethought, is obsolete, so far as the premeditation is concerned, and that the old terminology is now merely an illegal handle for advocates and a loophole for juries. Dr. Bucknill is of opinion that malice, or some term implying bad intention, must be preserved; but that the condition that the homicide must be aforethought, already extinct in practice, ought to be abolished as misleading.

*Constructive malice.*—As an instance of this the author quotes an instance which in the legal, but not in the popular, sense should have been murder. The Fenians, intending to rescue Dasent and Kelly, fired shots at the police-van, and killed a policeman. Dasent was in one of the compartments of the van, and it was afterwards found that the shot had gone through that compartment, penetrated the wood, and gone out at the other side; and if Dasent had been standing upright it would have gone into his head and killed him. Here a murder would have been committed without malice towards the person killed. The Fenian outrage in Clerkenwell furnished a striking instance of murder without intention to kill. A man Barrett exploded a barrel of gunpowder against the wall of a prison with the intention of making a breach in the wall through which the prisoner Burke might be rescued. The explosion killed a number of poor people outside the prison against whom Burke doubtless had no malice.

As to homicide by a drunken man, Dr. Bucknill remarks that we must allow that delirium tremens is not a frequent cause of homicidal violence. This statement is contrary to the popular non-medical impression. But the delirium from drink, which commonly results in homicidal violence, is *delirium à potu*, to which men who have suffered from injuries to the head, or from sunstroke, are peculiarly liable—a frantic kind of drunkenness, often following the use of small quantities of stimulants. This is a really dangerous form of delirium from drink which has never been recognised by the lawyers.

Mr. Stephen would make one form of homicide to be murder which may be designated "murder without injury to the person." It may be illustrated thus. Suppose a woman is ill, that her husband wishes to murder her, and the doctor says to him, she is in a very critical state; she has gone to sleep, and if she is suddenly disturbed, she will die, and you must keep her quiet! The husband goes to her room, makes a noise, and wakes her up with a sudden start, and frightens her; and

she does die according to his wish. Dr. Bucknill thinks this would be carrying murder into the abstract.

In reference to the administration of anæsthetics, Mr. Stephen supposes that a *bona-fide* operation upon a man when he was insensible, which caused his death, if done for the best, would not be a criminal act; but if the man were conscious and sensible, and he refused to submit to an operation, and notwithstanding this the operation were performed and he dies, and the jury is of opinion that the operation is a beneficial one, Mr. Stephen could not say whether this would be manslaughter or not. Would it be a trespass to tie an artery, or to operate for strangulated hernia—which Dr. Bucknill has done under chloroform—notwithstanding the vehement refusal of the patient, who was not of sound mind?

The author relates another case. A man bought arsenic, as he supposed, and swallowed it, with suicidal intent, telling his wife what he had done. Medical aid was procured, and the supposed arsenic was forcibly removed by the stomach-pump; but the man died. The druggist, suspecting the intention of his customer, had given him gypsum instead of arsenic, and death had been caused by injury to the stomach produced by the tube of the pump. Was the surgeon guilty of criminal homicide, or could the representatives of the dead man maintain an action for trespass? The question is not easily answered.

The question of *infanticide*, as discussed before the Committee, may be divided into two parts: the period at which an infant, being born or newly born, becomes a person, and taking its life becomes infanticide; and, the condition as to soundness or unsoundness of the mind of a parturient woman. The Bill which Mr. Stephen laid before the Committee dealt only with the first of these considerations. The continued connection with the body of the mother by means of the umbilical cord is a most important point. Of this Justice Blackburn, who, with Baron Bramwell, gave evidence before the Committee, says, "What I would do myself would be this: I would make it a substantive felony for the parent of a child, either before, or at, or during, or immediately after the birth, to cause the child to be prevented from being born alive or to die; when that was done intentionally, I would make it a substantive felony, to be punished severely."

## Wounds and Injuries.

*Wounds and injuries of the neck.*—D. P. Güterbock[1] contributes an elaborate and exhaustive medico-legal memoir of 88 pages on wounds and injuries of the neck, enriched by many illustrative cases. It is impossible to attempt any useful abstraction of this paper, not the least valuable part of which is an elaborate index of references to the literature of the subject.

Dr. Edward Hofmann,[2] of Innsbruck, relates and critically examines a case of strangulation.

*The resistance of the tissues before and after death.*—Dr. Falk,[3] of

[1] 'Vrtljhrsschr. f. Gerichtl. Med.,' xix, p. 1.
[2] Ibid., p. 89.
[3] Ibid., p. 18.

Berlin, has made an experimental investigation of this subject, the limbs of rabbits being the subjects of the experiments. He finds that the resistance, more especially of the hard tissues, as *e. g.* bones, is increased after death. An important practical conclusion results: if in a corpse extensive lesions are discovered, especially of bones lying in protected situations, these in cases of doubt are to be regarded rather as ante- than as post-mortem lesions. Fractures of the base of the skull are altogether exceptional. They are, unless from gunshot, mostly indirect, and always raise the suspicion of an intra-vital origin.

*Mark on the neck after suffocation.*—Dr. Behrend[1] relates a most interesting case of a man suffocated by a piece of food on whose neck a mark was observed as from a ligature, but which had really been produced by pressure of his clothes.

*Blood-stains.*

Dr. E. Hofmann[2] contributes two valuable papers, one indirectly, the other directly, having reference to the detection of blood-stains. Especially valuable is the latter memoir as embodying a large number of experimental observations of the author, as well as criticisms upon the investigations of other observers. The medical jurist will here find the following subjects treated of: the changes induced in the blood-discs by age; the discrimination between human corpuscles and those of animals; the effects of reagents upon the corpuscles, and their destruction by heat and cold; the recognition of hæmoglobin by the spectroscope and other means, and the changes which this body undergoes when submitted to varying conditions; the production of hæmin crystals; the effects of various oxides, such as iron rust and albuminous earths upon the colouring matter of the blood, and the means of detecting this when admixed with rust and soil; and, finally, the value of the guaiacum reaction as a test for the presence of blood. To this last test Hofmann attaches less value than Dr. Taylor and English medical jurists generally.

MM. Mialhe, Mayet, Lefort, and Cornil[3] are the reporters of a commission on the best manner of examining blood-stains. Their conclusions are formulated thus:—1. It is necessary above all things that the expert should avoid destruction of the red blood-globules. As water, acetic, gallic, hydrochloric, and sulphuric acids, the alkalies even in weak solutions, ether, chloroform, and the biliary acids, destroy the red corpuscles, the use of such liquids as contain those reagents is to be avoided; whilst alcohol, and aqueous solutions of chromic and picric acids, and of potassium bichromate, are admissible, since they preserve the corpuscles. Various receipts are given for liquids to be used for moistening the globules before placing them on the stage of the microscope; but the formulæ present no new features. The diameters of the red corpuscles of various animals are given as follows:—man, ·0003 inch; dog, ·00029; rabbit, ·00028; cat, ·00026; pig, ·00024; horse and ox, ·00022; sheep, ·0002; goat, ·00018; birds, ·0005 to ·0006;

[1] Ibid., p. 46.
[2] Ibid., xix, pp. 89, 113.
[3] 'Ann. d'Hyg.,' xxx, p. 191.

frog, ·0009. 2. If fresh the blood should be preserved for examination, sealed up with a half per cent. solution of common salt. 3. Should the expert fail to find red blood-corpuscles he may still be able to detect both fibrin and white blood-corpuscles by the microscope. 4. If red corpuscles, fibrin, and white blood-corpuscles are detected by the microscope, it is superfluous to push the examination further. 5. Should microscopic examination yield negative or doubtful results, recourse must never be had to the spectroscope and the production of crystals of hæmatin hydrochlorate. 6. The guaiacum test, as modified by Dr. A. S. Taylor, is useful in this respect, that if it yields negative results, we may be sure that no blood is present. 7. The substances to be tested should invariably be divided into four parts, one portion for histological examination, another for spectral analysis, a third for the production of crystals of hæmatin hydrochlorate, and the fourth for the guaiacum reaction.

Dr. Joseph G. Richardson,[1] of Pennsylvania, has continued his researches on the blood-corpuscles,[2] and advocates the use of higher powers than have hitherto been employed for discriminating the red corpuscles of different animals.

The *à priori* arguments against the value of the microscopic test for distinguishing human blood from that of the ox, pig, horse, sheep, and goat are grouped under three heads, viz. (1) That the difference between the red blood-corpuscles of man and of these domestic animals is too minute to render their positive discrimination possible, and too insignificant to admit of its being used as the means of condemning a fellow creature to death. (2) That even if the average diameters of these various corpuscles were shown to be so different that we might sometimes by this means distinguish them, yet the variations above and below the mean diameter are so frequent and irregular that they must render the determination of any such averages by mere micrometric measurement unreliable. (3) It may be held that no microscopist can hold himself justified in putting in question a man's life on the uncertain calculation of a blood-corpuscle's ratio of contraction by drying.—To these objections Dr. Richardson replies that the blood-corpuscles are just as much characteristics of the different kinds of living beings in which they occur as are the coverings of the body, &c.; and that a human red blood-corpuscle is as readily distinguished from that of, *e.g.* the sheep, as a No. 1 from a No. 5 shot. A human red blood-corpuscle, when seen under a $\frac{1}{50}$ inch objective, is apparently $\frac{9}{8}$ inch across; whilst a sheep's red blood-corpuscle, when viewed under similar conditions, is apparently only $\frac{5}{8}$ inch in diameter. Moreover, ordinarily in criminal cases a microscopist is called upon to determine, not whether a particular specimen is human, as distinguished from all other kinds of blood, but to discriminate simply between the blood-corpuscles of a man and an ox, a man and a horse, or a man and a sheep, and so establish or disprove the defendant's story as to how his clothing or other articles became

[1] 'Month. Microscop. Journ.,' xii, p. 130.
[2] *Vide* 'Retrospect,' 1871-2, p. 6; 1869-70, p. 470.

stained with blood. [In England the problem is usually more difficult. The expert is asked whether a given stain is human blood or not.—T. S.]

To the second objection, that the variations above and below the standard size of corpuscles from any particular animal are too great and irregular to permit us to obtain an accurate result by measurement, the author answers, that this difference in size is more especially observed in corpuscles dried in a thin film upon a glass slide, and is then probably in part a pathological change due to external violence in spreading and drying. These variations are, he alleges, comparatively slight in fresh blood. Among one hundred red corpuscles freshly drawn from five different persons, whites and blacks, of ages varying from eight to fifty years, the diameters were—maximum $\frac{1}{3182}$, minimum $\frac{1}{3559}$, mean $\frac{1}{3378}$ inch respectively. But when one of the specimens was dried in a thin film upon a slide, the maximum, minimum, and mean measurements were $\frac{1}{2800}$, $\frac{1}{3621}$, and $\frac{1}{3182}$ of an inch respectively; whereas the measurements of the undried blood gave the numbers $\frac{1}{3231}$, $\frac{1}{3500}$, and $\frac{1}{3355}$ inch. Virchow's assertion that a man's life should not be put in question on the uncertain calculation of a blood-corpuscle's ratio of contraction by drying is met by the statement that since the red corpuscles of oxen, horses, pigs, sheep, deer, and goats are all much smaller than those of man, no degree of *contraction* which they could undergo would render the stains in which they occur *more* liable to be mistaken for man's blood; and if, as is rarely, if ever, the case, according to Richardson, human red blood-corpuscles in a stain were by any means contracted so as to resemble those of an ox, for instance, in size, the evidence from microscopic examination would only mislead us into assisting in the acquitting of a criminal, and could not betray us into aiding to convict an innocent person. Moreover, the author's observations, made upon many different kinds of blood, and under a great variety of conditions, clearly indicate that the cell-wall of a red blood-globule is nearly or quite inelastic, and incapable of any marked expansion by the process of drying or moistening by the fluids which he recommends for the examination of blood-stains; and he states that the experience of Prof. Wormley and of Prof. Leidy accords with his in that those observers had never seen the drying or remoistening of red blood-corpuscles cause them to expand.

Dr. Richardson says that it is interesting and important to observe, that in no instance do the minimum diameters of the human blood-corpuscles closely approach the maximum diameter of even those from ox blood. The red corpuscles of ox blood were found to vary from $\frac{1}{4878}$ to $\frac{1}{4347}$ inch with a mean of $\frac{1}{4678}$; and those of the sheep from $\frac{1}{6666}$ to $\frac{1}{5405}$, with a mean of $\frac{1}{5890}$ inch. The author submits that he has proved that, since the red blood-globules of the pig, $\frac{1}{4230}$, the ox $\frac{1}{4267}$, the red deer $\frac{1}{4324}$, the cat $\frac{1}{4404}$, the horse $\frac{1}{4600}$, the sheep $\frac{1}{5300}$, and the goat $\frac{1}{6366}$ of an inch, are all so much smaller than even the ordinary minimum size of the human red disk, as measured in his investigations, we are now able by the aid of high powers of the microscope—$\frac{1}{25}$ and $\frac{1}{50}$ inch objectives—and under favorable conditions, to positively distinguish stains produced by human

blood from those caused by the blood of. any of the animals just enumerated.

In examining spots of blood Dr. Richardson advises that fragments should be scraped from the edges or thinnest parts of the stain; because specimens from the central portions sometimes exhibit numerous fibrin filaments which have appeared before the desiccation of the drop, and these interfere with the investigation of the corpuscles. These fragments are to be broken up into a fine dust, with a sharp knife upon a slide, and covered with a film of extra thin glass. A few drops of the ordinary three quarter of 1 per cent. (*sic*) common salt solution are then successively introduced at one margin of the cover, and removed from the opposite edge, as they penetrate thither, by a little slip of blotting-paper, thus washing away the colouring matter from the tiny masses of dried clot. When these particles are nearly decolorised, a drop of aniline solution or of dilute iodine in potassium iodide solution is allowed to flow beneath the cover, and, after remaining about half a minute, is in its turn washed away, and its place supplied by a further portion of weak salt solution.

F. Selmi[1] finds that the difficulty of obtaining hæmin crystals is largely due to the non-employment of the most favorable temperature, which he finds to be 75° to 80° in summer and 100° in winter. He also finds that the strength of the solution of sodium chloride in acetic acid used for the production of the crystals should be one fourth of saturation. When the blood is mixed with clay no crystals can be obtained by the usual method on account of the absorbing action of clay. If, however, the clay is treated with soda, and the latter neutralised with hydrochloric acid, evaporated to dryness, and the residue dissolved in acetic acid, the crystals readily appear.

*Signs of death.*—Dr. Liersch[2] gives an excellent and graphic description of the changes which the human eye undergoes after death; and on this account alone his memoir will well repay perusal. But he also proposes a new test to distinguish between a living body and a dead corpse. The contraction of the pupil after emptying of the aqueous humour through a puncture made in the cornea is an organic and not simply a mechanical action, and is hence of great and real value in a thanatological point of view as a means of diagnosis between life and death. This thesis is well supported by physiological arguments. The above operation is a very simple one, and is unattended with danger should life be still existent. The advantage of such a test in cases where rigor mortis and the more marked signs of death cannot be employed is obvious. Such cases are those of poisoning by the irrespirable gases, apparent or real death from the inhalation of fumes of burning charcoal, poisoning by narcotics, &c.

Magnus[3] recommends the following method for ascertaining whether life is extinct or not. If some part, such as a finger, is tightly bound by a ligature, even when life is at its lowest ebb, there is observed at the point of ligature a white circle due to arterial anæmia, while the

[1] 'Gaz. Chim. Ital.,' ii, p. 583; 'Journ. of Chem. Soc.' [2], xi, p. 1167.
[2] 'Vrtljhrsschr. f. Gerich. Med.,' xiii, p. 248.
[3] 'Virchow's Archiv,' lv, p. 511.

part beyond the ligature gradually becomes red and ultimately of a livid hue from venous hyperæmia. If complete cessation of the circulation and death has occurred no such changes are observed in the ligatured part, and hence his diagnosis of apparent death is rendered comparatively easy.

M. Rosenthal[1] is of opinion that the changes in the electrical excitability of the muscles at death afford a good means of distinguishing between real and apparent death. Shortly after death—from one and a half to three hours on an average—the muscles cease to react to electrical stimulation. By this method of electrical excitation Rosenthal was able to diagnose a case of apparent death lasting for forty-four hours, and thus prevented interment.

Dr. Devergie[2] contributes an exhaustive report to the French Academy of Medicine on the signs of death, *à propos* of a prize offered by the Academy for the best essay on the subject. The memoir contains a summary of all that is known on the subject, but is unsuited for abstraction.

*The persistence of the expression of the physiognomy at the moment of death.*—Drs. Brinton and Nendurfer[3] relate several instances of the persistence of the exact expression of the face at the moment of sudden death. There is, however, a fear that stories of such cases are not well authenticated. Dr. Rossbach,[4] however, takes up the question and discusses it in a scientific manner in a paper on "Cadaveric Rigidity commencing immediately after Death." He distinguishes between the several forms of this peculiar kind of cadaveric rigidity, and classifies them into—(1) The conservation of the physiognomical expression, so that it expresses the sentiments which it may be supposed the individual was experiencing at the moment of death. (2) The cases in which it may be concluded from the attitude of the corpse that death has supervened when the muscles were in a state of rigid contraction. (3) A group of cases in which the attitude of the corpse is extremely easy and graceful, as if no change had been undergone at the moment of death. Dr. Rossbach summarises his conclusions (drawn from an obviously insufficient number of cases) as follows:—1. In the majority of cases death relaxes the muscles completely, and this whether the muscles at the last moment of life be in an energetic or feeble state of contraction. Hence cadaveric rigidity seizes the muscles when they are in a state of relaxation and within a period of from five minutes to twenty-four hours of the last respiration. The position and attitude of the limbs in the greater number of corpses hence depends on the conditions which obtained at the moment of death, or on the form and attitude voluntarily imparted to these members immediately after death or whilst they were still supple. 2. But there is also a form of cadaveric rigidity which supervenes suddenly and immediately to active muscular contraction during life, without preceding relaxation. In these cases the attitude of the deceased is the

[1] 'Wien. Med. Presse,' Nos. 18, 19, 1872.
[2] 'Ann. d'Hyg.,' [2] xli, p. 380.
[3] Ibid. [2], xxxvii, p. 454.
[4] Ibid., p. 456.

same as during life. 3. These cases have been observed not only where death has been of a sudden and instantaneously destructive character, but also where death could have been foreseen, and where it has been met calmly. 4. This form of cadaveric rigidity is independent of the part wounded: it has been observed after wounds of the head, chest, and belly. 5. It affects not only muscles tetanically contracted, but also those only moderately contracted. The rationale of this form of cadaveric rigidity has not been satisfactorily determined.

*Cadaveric rigidity.*—Rossbach[1] relates a number of cases observed on the battle-fields of Beaumont and Sedan, where the corpses had become rigid in the exact position they had assumed just before death, even when such position was opposed to the action of gravitation. Among these were cases not only of sudden death, but also where death had taken place slowly, the individual being fully conscious of his approaching end. The expression of the countenance, the position of the hands, &c., were all as retained in rigid sculpture. The explanation cannot be a more tetanic contraction of the muscle at the moment of death. The cadaveric rigidity must have come on between the last moment of life and the first moment of death and not later, otherwise the muscles must have become relaxed or the position of the limbs altered by the action of gravity. The cause of this condition is not yet explained. It has often been attributed to the mere suddenness of death, but from the cases related it cannot be so. Brinton's idea that the cardaveric spasm is due to injury of the central nervous system Rossbach thinks is not in harmony with what he himself saw, as the condition was observed in wounds of various kinds, not necessarily affecting the brain or spinal cord. On this point, however, further investigations are required.

*Rate of cooling of the body after death.* — John C. Draper,[2] in making some experiments on the heat produced in the body and the effects of exposure to cold, has ascertained a fact of considerable importance from a medico-legal point of view, especially in estimating the time a body has been immersed in water after recent drowing. It is this: that if the body be immersed in water at 73° F., the temperature of the air being 83°—90° F., enough heat is lost in the course of an hour to cool the body five degrees, at least during the first hour. This datum may also serve as a guide to the determination of the state of cooling of a body immersed in water at other common temperatures.

*Pregnancy.*—M. Stoltz,[3] of Nancy, gives a valuable *résumé* of the medico-legal aspects of pregnancy. The principal questions relative thereto are discussed, but the paper is not well fitted for useful abstraction.

*Imperforate hymen.*—Dr. K. Braun[4] relates two cases of pregnancy occurring with imperforate hymens, in which it is impossible that there could have been intromission of the penis. He is of opinion that during coitus the womb was pressed down so that the os uteri was

[1] 'Virchow's Archiv,' li, p. 558.
[2] 'Amer. Journ. Med. Sci.' [3], iii, p. 445.
[3] 'Ann. d'Hyg.,' t. xxx, p. 137
[4] 'Vrtljhrsschr. f. Gerichtl. Med.,' xix, p. 197.

depressed till it reached sufficiently near to the minute opening in the hymen to admit of the spontaneous movements of the spermatozoa enabling them to reach the uterus.

*Spontaneous delivery of a child after the death of the mother.*—M. Louis Pénard[1] has presented an elaborate and detailed report on this subject to the Medico-Legal Society of Paris, *à propos* of a case of alleged *post-mortem accouchement* communicated to the Society by Dr. Subert, of Nevers. The reasoning of the report is not new, though it is highly interesting and instructive, as embodying a *résumé* of all the similar cases previously published. The case communicated by Dr. Subert is also of much interest, and is as follows:

A servant girl died after an illness of eight days. The physician in attendance at first diagnosed pneumonia, and afterwards intermittent fever. He was then summoned suddenly, and found the girl writhing upon the bed. As a blister had been applied, he suspected cantharadic cystitis. He passed a catheter, and discovered a five months' pregnancy, but from external palpation only. Half an hour later the girl died. He found no external signs of commencing labour, except a slight moistness of the vulva; but he made no vaginal examination. The woman who laid out the corpse asserted that there were no stains on the body linen worn by the deceased. Two days later, on raising the corpse for the purpose of placing it in the coffin, a fœtus, 10½ inches in length, fell from between the thighs of the corpse. There were no remains of the cord attached to the umbilicus, and the detachment of the body from that of the mother was complete. The everted uterus, 8 inches long and 6½ wide, with the placenta and cord (18 inches in length) lay between the thighs of the mother, and coils of the small intestines lay within the cavity formed by the peritoneal surface of the womb. Most remarkably, it is not mentioned that there was any gas distending the abdominal cavity.

## INFANTICIDE.

*Fractures of the fœtal skull.*—B. Wiebecke[2] contributes a valuable and exhaustive memoir on this interesting and obscure subject. He appears to have collected all the interesting cases and opinions bearing upon the subject which have been published in Germany. The essay is a perfect *repertoire* of facts, and although it does not contain much original matter it will well repay the perusal of the medical jurist.

*Atelectasis.*—Dr. Pincus[3] relates an interesting and, as he thinks, perhaps an unexampled case of extensive atelectasis in a viable child, born at the full term. The child lived at least six hours after its birth. The atelectasis of the lungs was pretty general, but little of them floating in water, and the body exhibited the usual signs of suffocation in a marked degree.

*Docimasia pulmonum.*—M. A. Devergie[4] has re-examined this test of

[1] 'Ann. d'Hyg.,' t. xxxix, p. 213.
[2] 'Vrtljhrsschr. f. Gerichtl. Med.,' N. F., xiv, p. 86.
[3] Ibid., 1873, p. 9.
[4] 'Ann. d'Hyg.,' t. xxxviii, p. 169.

respiration, and sums up as follows. The proofs of respiration having taken place are—1, the lungs fill the chest; 2, the surface of the lungs is of a rosy hue, and covered with vesicles, around the edges of which capillary vessels may be descried; 3, the lungs float upon water; 4, the lungs when divided into fragments float upon water, and when respiration has been incomplete only portions of them may be thus buoyant; repeated compression between the fingers does not cause the fragments to sink in water. These data afford proof of either complete or incomplete respiration having taken place. He gives the proofs that no respiration has occurred thus:

A. No respiration has been set up: 1, the tissue of the lungs is compact, the colour like that of liver, and there are no vesicles visible; 2, they sink in water as a whole; 3, cut into pieces, each fragment of the lungs sinks, and of course the same occurs after compression between the fingers.

B. Respiration has not been established, but putrefaction has proceeded in the pulmonary tissue. 1, The lungs are formed of compact and liver-like tissue, but vesicles are perceived on their surface of variable size, and occasionally of an oblong shape; 2, the lungs as a whole sink in water; 3, each divided fragment of lung may sink in water; 4, when compressed beneath the surface of water, bubbles of gas escape, and then the fragments sink to the bottom of the vessel.

M. P. Budin[1] also makes a communication on the same subject, and formulates his conclusions thus: 1, Docimasia pulmonum, though often extremely valuable as a proof that respiration has occurred, sometimes fails to prove the fact of respiration; 2, this is the case only when the child has been born before the expiry of the full period of gestation, and is very feeble; 3, in these cases the lungs preserve their fœtal aspect; 4, their anatomical state at this epoch of intra-uterine life explains the results of observations; 5, when an incision is made near the hilum of the lungs, and the air of the central pulmonary tissue is compressed, a sero-sanguinolent fluid exudes, which bears on its surface extremely minute bubbles of air; 6, if the same parts are compressed beneath the surface of water, these air-bubbles are seen rising to the surface; 7, these last two phenomena are the sole indications, in such cases, that the lungs have been penetrated by air.

*Points of ossification as signs of maturity.*—Prof. Barkow,[2] of Breslau, in a small work on the pathology of development, discusses the diagnostic value of points of ossification in the epiphyses of the long bones as regards the maturity and viability of the child. As is well known, Casper and others lay it down as a rule that a child must have lived after birth if the epiphyseal nucleus of the lower end of the femur is over three lines in diameter. If the bones only are found and none of the viscera, Barkow thinks it would be very hazardous to conclude from this sign alone as to the maturity of the child, and thinks that only a diameter of four lines would warrant a medical jurist stating with any degree of certainty that the child must have lived after birth, seeing that the nucleus of the lower end of the femur, as well as all other

[1] Ibid., p. 179.
[2] *Vide* 'Vrtljahrsschr. f. Gerichtl. Med.,' xiv, N.F., p. 328.

points of ossification are subject to variations from such conditions as arrested or premature development.

In the latest edition of Casper's Handbook (Simon) it is stated that in the last month of fœtal life no other long bone but the femur has a point of ossification. This Barkow shows to be an erroneous statement. He has found, though in rare cases, an epiphyseal nucleus in the head of the humerus, along with an upper tibial epiphyseal nucleus in stillborn children apparently having reached the last week of gestation. In the majority of cases of new-born children in whom the points of the nails are developed, there is to be found in the upper epiphysis of the tibia a nucleus of 1 to 1½ lines in diameter.

The presence of this nucleus only allows of the conclusion that the child was fully developed. Barkow thinks that the tibial nucleus should likewise be examined in medico-legal cases.

The tibial nucleus may, however, be found in hemacephalic children quite incapable of maintaining life. To his former observations on this point Barkow adds several new cases.

The supposition that no other long bone but the femur has an epiphyseal nucleus would, however, lead to the opinion, where a tibial nucleus was also found, that the child must have lived and breathed after its birth. The author's conclusions on the subject are:

(1.) That the presence of the upper epiphyseal nucleus in the tibia only proves that the child had reached the full period, but not that it had lived after birth.

(2.) The presence of a nucleus in the tibia, or even in the head of the humerus, does not prove that the child was in the condition to live and breathe after birth.

(3.) The second proposition is especially borne out by the occurrence of the tibial nucleus in hemicranial monstrosities which are not viable. The author has never found the slightest evidence of respiration on applying the hydrostatic test to the lungs in such cases.

*Doubtful sex.*—Tardieu,[1] in a memoir on the medico-legal aspects of malformation of the sexual organs, relates an interesting case where the doubtful sex of an individual whose genital organs were not normally formed gave rise to considerable litigation. The individual in question had been married for more than two years, and it was only at the end of that time that the husband, though aware of the physical incapacity of his wife, brought a suit for nullity of marriage on the ground of her not being a woman. In the French law neither impotence nor sexual malformation in an individual really of the other sex, is a ground for divorce, but as marriage between two individuals of the same sex is null, the question was tried on the latter ground. The case proved to be one of enormous hypospadia, neither uterus nor ovaries being present. The first decision was against the validity of the marriage, but the wife appealed and the decision was reversed. On the third occasion Tardieu was consulted. On his opinion that the individual was really of the male sex, but the subject of malformation (hypospadia), the first decision was again confirmed. In a second paper[2] Tardieu makes

[1] 'Ann. d'Hyg.,' 1872, p. 179.
[2] Ibid., p. 384.

further observations on cases of sexual malformation which lead to erroneous registration and which are often late, sometimes never, cleared up, the individual following the habits of the opposite sex. As a general rule, with proper precautions such errors may be avoided, yet cases occur in which considerable difficulty may be encountered. Tardieu describes the characters of ordinary cases of so-called hermaphroditism and the means of diagnosis. He considers that the chief errors are committed in reference to cases really of the male sex, but the subject of such sexual malformations as cryptorchism or hypospadia, so that they more or less resemble women, and especially, as sometimes happens, have the female habit. Such cases are the most important in a medico-legal point of view.

Tardieu relates several cases, among others an interesting case of an individual who lived for 22 years as a woman and at the end of that time assumed her proper sex, when the error was discovered.

*Injuries from negligence, &c.*—In a series of four articles[1] Tardieu investigates in their forensic aspects, both in civil and criminal law, the various kinds of injuries and their consequences which may arise from negligence, accident, and violence. The papers will not bear abstraction, but will be found to contain much that is interesting and important, if not altogether new.

*Hair.*—Dr. Otto Oesterlen,[2] of Tübingen, has published an elaborate and exhaustive critical memoir on human hair in its medico-legal aspects. This memoir will well repay the perusal of the medical jurist. It is, however, not suited for abstraction, its chief value lying rather in its criticisms on what was previously known than in new observations. The paper, nevertheless, contains some valuable measurements of human hair under varying conditions.

*Vegetable filaments.*—Dr. C. Roncher[3] contributes a paper, illustrated by beautiful coloured plates, on the vegetable fibres used in various industrial manufactures, and on the means of distinguishing them. Its perusal will be found to be of interest to the medical jurist and to the food analyst.

[1] Ibid., 1871.
[2] 'Schmidt's Jahrb.,' clvii, p. 281.
[3] 'Ann. d'Hyg.,' t. xxx, p. 64.

# REPORT

ON

# MATERIA MEDICA AND THERAPEUTICS.

BY

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## NEW REMEDIES.

*Jaborandi.*—This new remedy, a native of Brazil, of doubtful botanical origin, has been tested and reported on by M. Robin,[1] by Drs. Ringer and Gould,[2] by Mr. Martindale,[3] and by Prof. Baillon. Robin states that when a dose of infusion corresponding to one dram of the drug is administered to an adult, the excretion of urine speedly diminishes in amount, but this disappears next day. The urea, chlorides, and uric acid diminish on the day of administration, then increase slightly in amount, and then fall to the normal. Urea is found in the sweat and saliva in notable quantities, but not uric acid. In Bright's disease the influence of the drug on the excretion of albumen was doubtful. Jaborandi produced intense diaphoresis, with simultaneous increase of pulse and temperature. The sweating was followed by lowering of the pulse and temperature. Sphygmographic tracings of the pulse were taken at various periods after administration of the drug. There was a great diminution of arterial tension during the stage of diaphoresis. As this was accompanied by asystolia, M. Robin is of opinion that jaborandi exerts a special paralysing action on the vaso-motor nerves; and that the cardiac asystolia and abundant secretion of sweat and saliva are due to this cause.

In small doses jaborandi acted neither as a diaphoretic nor as a sialogogue, but as a diuretic. M. Gubler, on whose patients the drug was tried, thinks that it exerts a special irritant influence on the renal cells.

It is asserted by Prof. Baillon that jaborandi is composed of the leaves and twigs of *Pilocarpus peniatifolis*, a pultaceous plant. It was first brought to France by Dr. Continho, of Pernambuco. Drs. Ringer and Gould fully confirm the statements made by Dr. Con-

[1] 'Bull. Gén. de Thér.,' Nov. 30, 1874.
[2] 'Practitioner,' xiii, p. 387.
[3] 'Pharm. Journ.,' 1874, p. 365.
[4] 'Journ. de Pharm. et de Clin.,' 1875, p. 23.

tinho, and confirmed by Dr. Gubler and M. Rabuteau, as to the powerful diaphoretic and sialogogue properties of the drug. It appears to be well worthy of an extensive trial by the profession at large. Its identity with *Pilocarpus pennatifolius* is doubted by Mr. Martindale, an excellent authority, who, however, admits that it closely resembles the leaves of that plant.

The agents who supply the drug from Pernambuco state that it is a medical shrub known by them, but little used, notwithstanding its excellent virtues, as the medical men in Pernambuco prefer to use foreign medicines; and they state that it is an excellent sudorific and a good sialogogue. The tincture is used for friction to paralysed limbs.

Jaborandi is undoubtedly a drug of marked physiological action, and of great therapeutical promise. To Mr. Martindale the effect seemed marvellous. He made an infusion of sixty grains of the drug in five ounces of boiling water, let it stand a quarter of an hour, and strained it. The characteristic odour of jaborandi was then found to have almost entirely disappeared. The infusion had a mawkish bitter taste, but did not excite the glowing sensation upon the tongue that the drug itself did; but the dregs still retained their pungent taste when chewed. Mr. Martindale swallowed as much of the dregs as he could (about fifty grains), and washed them down with the infusion on retiring to bed. In five minutes he felt a glow, increased circulation, uneasiness in the head, and restlessness. The secretion of saliva was increased. In fifteen minutes there was free perspiration. The salivation and perspiration were speedily profuse, and the eyes became blurred; near objects could be distinguished, but not those at the distance of a few feet. The pupils were slightly dilated. In half an hour the pulse was 96°, and it subsequently rose to 104°. Articulation was difficult and indistinct. The perspiration was far more profuse than that produced by a Turkish bath, and the saliva required constant ejection. In an hour and a quarter after taking the dose (clearly an over dose) vomiting occurred, at first of the saliva swallowed, then of some of the jaborandi. Sixteen ounces of saliva were collected, and much was lost. In two hours Mr. Martindale fell asleep, and slept for four hours. He recovered in about eight hours after taking the drug.

*Gelseminum.*—This remedy, derived from the root of the yellow jasmine, is now extensively used in the United States as a sedative, and is imported into this country for use by herbalists and quacks. It has already been adverted to in the Biennial Retrospect of this Society.[1] We have also recorded[2] a remarkable state trial in which much attention was drawn to this drug.

*Fontaina pancheri.*—The seeds of this tree yield an oil which acts in a somewhat similar manner to croton oil as a drastic purgative and pustulant. Dr. Heckel[2] recommends its use in preference to croton oil, as being quicker in its action and less liable to induce nausea and vomiting. Two drops are a sufficient dose as a drastic purgative.

[1] *Vide* 1869-70, p. 464.
[2] 'Schmidt's Jahrb.,' cliii, p. 260.

*Condurango.*—Condurango is the bark of a tree belonging to the order *Asclepiadæ*, genus *Perioploca.* It is much vaunted in South America as a specific for cancer. Its use has not hitherto met with much favour in this country. Dr. Schroff, junr.,[1] contributes an article on its properties and uses. It yields a milky juice, which sets into a yellow resin. It is recommended for cancer, syphilis, rheumatism, scrofula, all chronic blood diseases, and neuralgia. Investigations have been carried out in this country and on the Continent which have demonstrated that the drug is worthless as a cure for cancer.

*Eucalyptus globulus.*—This medicament has of late come into extensive use, and at one time promised to form an important agent in our materia medica. Dr. H. Köhler,[2] of Halle, reviews at length the various statements which have been made as to the efficacy of the various parts of the plant. The active properties of eucalyptus have been ascribed to various substances met with in the plant; they may be due to eucalyptol, a fixed oil. Eucalyptus is said to have been successfully administered in ague and other malarious diseases, puerperal fever, intermittent neuralgia, as a stimulant (when smoked) to the cerebral circulation, in inflammatory pulmonary affections, tubercular diseases, hectic, inflammation of the genito-urinary passages, diabetes, as a hæmostatic and astringent, and, finally, as a disinfectant. Its efficacy in many of these diseases is, however, open to much doubt.

Dr. Oeffinger[3] has reinvestigated the actions of eucalyptus, and finds that (1) it is a febrifuge; (2) its action is as certain as that of quinine, but is quicker; (3) it is sometimes useful where quinine has failed; (4) where the tincture of eucalyptus has failed of its intended effect, quinine also as a rule fails also; (5) eucalyptus produces no unpleasant after-effects.

*Croton-chloral hydrate.*—This substance has been extensively used in place of chloral hydrate, and is said to possess certain advantages over the latter. We need not do more than give references[4] to the special monographs upon the action of croton-chloral hydrate.

*New preparations of bromine.*—Dr. E. Steinauer[5] has investigated the physiological actions of some new bromine preparations, with a view to the elucidation of the actions of the alkaline bromides. He has in this way experimented with hydrobromic acid, monobromacetic acid, monobromobenzoic, and sodium monobromobenzoic acid. He finds that where the bromine is loosely combined, as in monobromacetic acid and in bromal, the paralysing action is decided upon the respiratory and excitomotor (cardiac) centres, the ganglia of the spinal cord, peripheral nerves, and muscles; and as proof that the bromine is separated from its compound, he states that it may be detected in the urine. On the other hand, where the bromine atom is strongly combined (as in

1 'Wien. Med. Pres.,' xiii, p. 18.
2 'Schmidt's Jahrb.,' clvii, p. 231.
3 Ibid., clxi, p. 228.
4 Ibid., clxiv, p. 238; 'Brit. Med. Journ.,' 1874, 1, p. 304; 'Bull. de Thér.,' lxxxvi, p. 447.
5 'Virchow's Archiv,' lix, p. 65.

monobromobenzol) the action of the bromine is modified by the other elements with which it is associated.

*Trimethylamine.*—This organic base has recently been extensively used on the Continent.[1] Dr. Andhoui[2] thus summarises its physiological and therapeutical actions: 1, Trimethylamine influences the oxidation processes going on in the organism, and diminishes the excretion of urea; 2, it slows the circulation, and diminishes the animal temperature; 3, trimethylamine exercises a sedative action on the nervous system, and alleviates gouty and rheumatic pains in the joints.

*Chionanthus Virginica.*—Dr. Washington,[3] of Macon, Georgia, writes in the 'Pacific Journal of Medicine,' that in the treatment of diseases of the liver we should place *Chionanthus Virginica*, or old man's beard, first on our list of remedies. He states that in all the various forms of liver complaint incident to malarial poisoning its action as a liver regenerator is undoubted; that it is useful where digestion is enfeebled or nutrition is impaired, and where the bowels are constipated or too loose. In dropsical affections, jaundice, and malarial cachexia, it is stated to be the remedy *par excellence*. Certainly if it possesses all the virtues attributed to it by Dr. Washington, Chionanthus Virginica is a valuable adjunct to our repertory of drugs.

*Hydrastis Canadensis.*—This plant, the golden seal, has been recently added to the U. S. Pharmacopœia. It has been reported on by Dr. Van der Espt.[4] The rhizome is the part of the plant used in pharmacy. In it two alkaloids have been found—berberine and hydrastine, and the presence of a third has been asserted.[5] Berberine is also present in calumba, and other roots used for tinctures. Hydrastine produces numbness in the mouth, and is used as a local anæsthetic in America; or, rather, an impure hydrochlorate of berberine and hydrastine.

Hydrastine is said to be beneficial in atony and increased secretion of the mucous surfaces.

*Apocynaceæ.*—This natural order of plants has recently added a new remedy to medicine. H. Hildwein[6] reports on this drug from the *Echises* (?) *scholaris*, a tree growing in the Philippines, where its bark is used under the name of *dita* by the natives as a febrifuge. G. Gruppe, an apothecary in Manilla, states that he has obtained from it a bitter hygroscopic substance, which he has named *ditain*. Dr. Zina, of Manilla, finds that this substance is a perfect substitute for quinine when administered in similar doses, that it is an efficient tonic, and that it does not produce the unpleasant effects which follow the use of quinine. Ditain may be extracted from dita bark to the extent of two per cent. It appears to merit a more careful chemical and physiological investigation.

1 *Vide* 'Schmidt's Jahrb.,' clix, p. 24.
2 'Gaz. Hebd.,' 2 sér. x, 7, 1873.
3 'Lond. Med. Rec.,' 1, p. 553.
4 'L'Union Pharm.,' xiii, p. 321; 'Lond. Med. Rec.,' 1, p. 653.
5 'Amer. Journ. Pharm.,' [4], iii, p. 247.
6 'Ztschr. Allgm. Oestrch., Apot.—Vër,' xi, p. 249; 'London Med. Rec.,' i, p. 571.

*Guttiferæ.*—Hildwein[1] also reports on a new remedy from the *guttiferous* order of plants, *Garçinia mangostoma,* which grows in Madras and the Philippines. Gruppe prepares an extract of the fruit rind, and a decoction of the rind is also used. Both are stated to be safe, rapid, and efficient remedies for dysentery, chronic diarrhœa, and catarrhal diseases of the bladder and urethra.

METALS.

*Arsenic.*—A. P. Fokker,[2] of Goes, Netherlands, shows by his experiments that the administration of arsenic diminishes the excretion of urea and causes increase in the weight of the body, these changes being due to diminution of tissue degradation.

*Calomel.*—Prof. Bellini[3] discusses this substance in an elaborate manner. The object of his essay being the possible change, either partial or complete, of calomel into corrosive sublimate within the living body of either man or of the inferior animals, he subdivides his matter under two heads:

(*a*) Of the changes undergone by calomel taken into the system by the mouth.

(*b*) Of the changes that may be produced in it when applied externally to either diseased or healthy surfaces, or introduced hypodermically.

Having stated as the fact earliest known (A.D. 1763) that a noxious compound resulted from the union of calomel with an ammoniacal salt, he adverts next to the opinion which was advanced after a few years, that in the presence of salts, which would not be termed alkaline chlorides, calomel was liable to be changed into corrosive sublimate. Many years later this appeared to be confirmed by the experience and authority of Petenkoffer. Later still, Mialhe having in his experiments ascertained that the quantity of corrosive sublimate produced was not proportionate to that of the calomel employed, but had a direct relation to that of the alkaline chlorides present, and also of the air or gases with which the mixture might be in contact, arrived at the conclusion that calomel owed all its medical virtue to its transformation into corrosive sublimate within the alimentary canal. From this conclusion Prof. Bellini dissents, as he also does from that of Bouchardat, according to which the change in the calomel is produced in the small intestines by the agency of alkaline carbonates existing in the enteric juices. Bellini, by experiments which he details, found that calomel was not only altered as previously observed, by or in the presence of alkaline carbonates, but also by the free acids of the gastric juice, especially by the lactic, and that this was sensibly influenced by the conditions of fasting and repletion. He also found that, although a soluble compound of mercury was produced, it yet differed from corrosive sublimate in not coagulating albumen, and not being precipitable by the alkaline carbonates. Analogous results were obtained in experiments on mixtures of calomel with protein and other alimentary substances in circumstances of temperature as nearly

[1] 'Ztschr. Allgm. Oestrch. Apot.-Ver,' xi; p. 249; 'Lond. Med. Rec.,' i, p. 571.

[2] 'Nederl. Tijdschr.,' 1872, Sep. A, quoted in 'Schmidt's Jahrb.,' clviii, p. 14. Reviewed in 'Dub. Journ. of Med. Sci.,' 1873, Oct.; 'Lond. Med. Rec.,' i, p. 700.

as possible similar to those of the living stomach. All these numerous and well-designed experiments appear to have been made with scientific caution and a due appreciation of possible disturbing causes. The changes undergone by calomel applied externally were investigated with equal care, and the results brought into connection with what has been observed of its effects when used either epidermically or hypodermically.

From all this laborious investigation Prof. Bellini deduces twenty-four several conclusions, into which he sums up what he proposes as results established by clinical experience and experiments in the chemical laboratory. Of these we subjoin what appear to be the most practically important:

That calomel introduced by the mouth into the fasting subject is, in a very small portion of the stomach and a greater of the small intestine, changed into a soluble mercurial compound.

That in the stomach this change is effected by the lactic acid and the alkaline chlorides, and in the small intestine by the alkaline carbonates of the enteric fluids.

That calomel introduced into a stomach which is digesting protein aliments is either wholly or almost decomposed within that viscus, and that the results of such decomposition are metallic mercury and a soluble mercurial compound.

That acid drinks and fruit should be withheld during the use of calomel; but that magnesia, whether calcined or carbonated, administered during a course of calomel, promotes the local action of that mercurial.

That the use of calomel may be injurious when contemporaneous with that of ammoniacal salts, and also in certain diseased conditions, *e.g.*, in those suffering from ammoniema, uro-ammoniema, cholera, typhus, &c.

That the use of calomel might cause poisoning when administered contemporaneously with the hydrochloride of ammonium, with the aqua lauro-cerasi, with the alkaline or the metallic iodides and bromides, the alkaline sulphides, and the alkaline hydrobromates and hydriodates.

That opium and its preparations exercise no decomposing power on calomel, but render its effects less perceptible, not by any chemical action, but by their control of the sensibility.

That calomel applied externally, whether to a whole or an ulcerated surface, or introduced hypodermically, may be rendered soluble by the alkaline chlorides of the organic fluids with which it is brought into contact.

That such external application may produce severe local lesions if there be contemporaneous internal use of the alkaline iodides, bromides, or sulphides, or even of sulphur itself in small and frequent doses.

And that, lastly, clinical observation is in complete harmony with the results of chemical and physiological research.

*Treatment of cholera by the black sulphide of mercury.*—Socrate Cadet,[1] Professor of Physiology in the University of Rome, from a comparison of the statistics of mortality from cholera during the

[1] 'Nouvelles Études sur le Choléra Asiatique.' Rome, 1872. 8vo, pp. 49.

epidemics in Rome of 1837, 1854 to 1856, and of cases treated in recent years with the black sulphide of mercury (Ethiops mineral), is of opinion that this substance is the most valuable means we possess for the prophylaxis and cure of this disease. He considers it acts by destroying the contagious germs of cholera. As a prophylactic when the disease is likely to become epidemic, he recommends that 4 grains of the sulphide should be taken daily. When there is reason to fear that the system is already invaded he recommends that 24 grains should be taken at once and repeated if vomiting should occur, and that 12 grains should be taken every hour till the choleraic symptoms have entirely disappeared. Among the results claimed for this method of treatment it is stated that by this means the epidemic was checked in an Italian town in the month of June, 1867, at which time there was an immense concourse of religious pilgrims. He concludes by saying "that the observation made at Rome on the best means for the prevention and cure of cholera demonstrate that we may at will let the plague spread, or combat it, or crush it at its commencement, by having recourse to the black sulphide of mercury, a remedy at once cheap and harmless."

*Alkaloids.*—Dr. M. J. Rossbach[1] has investigated the general action of alkaloids upon the organic substratum of the animal body, and finds: 1. The alkaloids decrease the affinity of albumen for ozone. 2. At a temperature of 86°—104° Fahr. they cause, after the loss of its affinity for ozone, certain recognisable changes in albumen. 3. The alkaloids are able to precipitate egg-albumen from its solutions. 4. The diminution of the oxidisability of the protoplasm brought about by the alkaloids is determined on the one hand by the above described change in the albuminates, and on the other hand by the firmer combination of ozone with hæmoglobin.

*Influence of quinine and nitrate of potassium on the heart and temperature.*—Block[2] finds that small doses of quinine quicken the pulse and at the same time lower the temperature; larger doses lower both pulse and temperature; while toxic doses diminish the beats of the heart up to final stoppage. In regard to the relation between the pulse and temperature Block believes that the action of quinine on the heart and temperature are quite distinct and independent, and that the two phenomena do not stand in causal relation to each other.

Nitrate of potassium resembles quinine in its action on the pulse and temperature. Small doses quicken the heart, a fact previously stated by Kemminch; larger doses lower the temperature, and slow the heart. Experiments as to the influence of quinine in the febrile condition do not bear out the statements made by some that it acts more energetically in such condition than in the normal state.

*Quinine.*—Binz[3] and Gützloe[4] have observed that quinine lessens the molecular movements of inorganic particles, such as Indian ink. Binz has also noticed that quinine hinders the decomposition of organic

[1] 'Schmidt's Jahrb.,' clx, p. 9.
[2] 'Centralbl. f. d. Med. Win.,' No. 5, 1871.
[3] 'Berl. Klin. Wochenschr.,' 1871, pp. 556, 575.
[4] 'Virchow and Hirsch's Jahresber.,' 1871, p. 350.

bodies by dilute acids or by boiling. He finds it of great service in typhoid fever in doses of four grains. Its local application in solution to the nostrils cures hay fever. Duboné considers quinine to resemble ergot in its oxytoxic action.

Schultze[1] finds that quinine hinders that formation of acid in blood which is due to oxidation taking place within it both before and after coagulation. This seems to show that quinine has a direct influence on tissue change apart from any action which it may produce through the nervous system. Binz considers that the effect of quinine in lowering the temperature is chiefly due rather to its action on the tissues and fluids than on the nervous system. He has repeated the experiments of Naunyn and Quincke, and finds, like them, that the elevation of temperature which they observed after pinching the spinal cord in dogs may be prevented by quinine. In order to get this result the quinine ought to be given in solution, and the best form is the hydrochlorate.

Monteverdi[2] considers that quinine stimulates the sympathetic nerves and thus causes contraction of the uterus, bladder, intestines, and blood-vessels. The gravid uterus is most easily affected and quinine ought therefore to be given cautiously to pregnant women. It may be used at any stage of labour instead of ergot, and is less apt than it to injure either mother or child, is more certain in its action and produces pains of a normal character. It is useful also in cases of retained placenta, in hæmorrhage during pregnancy, in amenorrhœa due to torpid conditions of the uterus, in puerperal fever, hysteria, and hysteralgia. In small doses it increases the frequency and force of the pulse, but large doses depress the circulation. The author thinks, like Gubler, that morphia is to some extent antagonistic to quinine, and that they may be used as antidotes to each other in cases of poisoning.

*Hyoscyamine.*—Dr. Oulmont[3] has investigated the actions of hyoscyamine in nervous affections, tetanus, and mercurial tremors, being led thereto by the uncertainty of the effects of hyoscyamus itself. He summarises his conclusions thus: (1) Hyoscyamine contains all the active part of hyoscyamus, and acts with greater certainty than the plant itself. (2) It must be used at first in small doses of $\frac{1}{33}$ grain daily, which may be increased $\frac{1}{6}$ to $\frac{1}{4}$ grain. (3) Its use may be persevered in in spite of slight symptoms of intoxication, such as dryness of the fauces, and dilation of the pupils; and its use need only be suspended when severer symptoms appear, which are, however, only transitory. (4) It is especially useful as an anodyne and in neuralgia. (5) It acts favorably in neuroses; it cures obstinate cases of mercurial tremor; and it is beneficial in senile palsy and paralysis agitans. (6) It is of decided use in locomotor ataxy. (7) In traumatic tetanus an amelioration may be expected from it when injected beneath the skin to the extent of $\frac{1}{6}$ to $\frac{1}{4}$ grain per day.

*Apomorphine.*—Dr. Fronmüller[4] strongly recommends apomorphine

1 'Neu. Rep. Pharm.,' xx, p. 539.
2 'La Nuava Liguria Medica and New Remedies Act,' 1871, p. 91.
3 'Bull. de Thér.,' lxxxiii, p. 481.
4 'Schmidt's Jahrb.,' clxi, p. 122.

hydrochlorate as an emetic and expectorant. As an emetic he injects a one or two per cent. solution of the salt beneath the skin; and finds that such a solution has its activity undiminished even when kept for months. The green colour which solution of apomorphine acquires when kept is no disadvantage.

As an expectorant Dr. Fronmüller administers a solution of the salt by the mouth. A dose of one or two grains of apomorphine hydrochlorate is dissolved in sugared water, and of this a tablespoonful is given every two hours. It is said to be very efficacious in croup, hooping-cough, and asthma.

*Conia.*—Damourette and Pelvet[1] find that conia stimulates the spinal cord, but paralyses the motor nerves. The nerves seem to be first affected, and when small doses are given only paralysis is observed; but when the dose is large the stimulant effect on the spinal cord is rendered evident by the occurrence of tetanic spasms and convulsions. This effect on the cord is soon prevented from manifesting itself by the motor nerves which pass from it to the muscles becoming paralysed. This double action of conia on the cord and nerves explains its effects on the pupil, respiration, and heart. Conia renders the blood dark and prevents its coagulation. The author thinks that this power renders conia a valuable alterative. When applied locally conia first stimulates and then paralyses nerves and muscles, and disorganizes the tissues.

Its double action on the cord and nerves is supposed by Fraser[2] to be due to its really consisting of two substances, pure conia and methyl-conia. Verigo[3] shows that the convulsions are not due to obstructed respiration.

Burman[4] recommends conia in doses of half a minim to three minims for subcutaneous injection in cases of acute mania where the brain lesion is not organic, and medicine, if given by the mouth, would require to be administered with the stomach pump. It is well to begin with $\frac{1}{10}$ minim for a dose. Conia subdues motor excitement, wards off emaciation and exhaustion, and promotes recovery.

*Acrid substances.*—Prof. Rud. Buchheim[5] has investigated several of these with the view of discovering to what principles their acridity is due.

Castor oil was found to owe its acridity to ricinoleic acid. Indeed, castor oil consists almost entirely of the glyceride of that acid, with traces of stearin, palmitin, and cholesterin. The oil itself, strictly speaking, contains no acrid principle, the glyceride of ricinoleic acid not being acrid. The acridity is developed only when the acid is set free.

Croton oil owes its acridity to the presence of crotonoleic acid, an acid closely related to ricinoleic acid. Neither croton oil nor

1 'Mém. de la Société de Thérap.,' iii, 1871.
2 'Journ. of Anat. and Physiol.,' 1872, p. 498.
3 'Centralbl. f. d. Med. Wiss.,' 1871, p. 28.
4 'West Riding Lunatic Asyl. Med. Rep.,' vol. ii.
5 'Arch. d. Heilk.,' xv, p. 1, 1873.

castor oil was found to contain any resinous substances, as had previously been asserted.

*Picrotoxin.*—Povergo[1] draws attention by his experimental researches to the similarity between the actions of strychnine and pircotoxin upon the inhibitory centre of the cord.

*Ergot.*—Dr. P. Ebertz[2] concludes from his own researches that (1) the diminution in the frequency of the pulse observed as a result of the adminstration of ergot is due to the direct action of the constituents of the drug in the blood upon the terminals of the vagus in the heart. (2) The origin of the vagus is unaffected, and the vagus itself is not paralysed by ergotine even up to the time of death. (3) The above-mentioned action has for result an increase in the fulness of the pulse. (4) Rhythmic cardiac pulsat ions are also simultaneously produced. (5) The increased blood-pressure resulting from the administration of ergotin is not of peripheric origin, but is the result of direct irritation of the vaso-motor centre by the ergotin dissolved in the blood. (6) This excitation of the vaso-motor centre does not lead to paralysis of the animal, even when death is the final result; as is proved by the fact that excitation of a superficial nerve of sensation (saphenus) leads to a reflex increase of blood-pressure.

Dr. Handelin[3] has also investigated this drug, under the direction of Prof. Schmiedeberg. He states that an aqueous is more active than an alcoholic extract. Small doses of the aqueous extract, neutralised with sodium carbonate, when injected into the veins caused anæsthesia, and loss of the power of co-ordination, whilst larger doses produced paralysis of both voluntary and reflex motions. The peripheral nerves were not affected, the paralysis being due to affection of the nervous centres. Convulsions and myosis were observed. The pulse was at first quickened, then gradually slowed till death occurred. Water extracts the active principle, and since ergot extracted with alcohol has lost but little of its activity, it would appear that the active principle is but little soluble in alcohol. Handelin failed to extract it from the aqueous extract; and it seems impossible that Wenzell's ecbolin and ergotin can be the active ingredients of ergot.

S. Kersch,[4] A. Wernich,[5] and J. Lauber,[6] have also investigated the actions of ergot. The last found the extract of ergot very effectual, when injected, in restraining epistaxis. The most striking effect noted by Kersch in his experiments upon dogs was the remarkable contraction of the calibre of the arteries. It effected the expulsion of the young from pregnant cats. It produced the best results when administered in puerperal fever, slowing the pulse, and speedily lowering the temperature of the body.

Wernich has determined the action of the drug upon the uterus and also its hæmostatic effects. He injected the officinal aqueous

1 Quoted in 'Schmidt's Jahrb.,' clviii, p. 130.
2 'Schmidt's Jahrb.,' c. lviii, p. 126.
3 'Für Kentniss d. Mutterkorns,' Dorpat, 1871; 'Lond. Med. Record,' i, p. 13.
4 'Memorabilien,' xviii, p. 202.
5 'Virchow's Archiv,' lvi, p. 505.
6 'Bayr. Artzl. Int.,' Bd. xx, p. 22; 'Schmidt's Jahrb.,' clx, p. 122.

extract, mixed with glycerin and water. The alleged hæmostatic effects of ergot were found to be very doubtful; except in uterine hæmorrhage, where it is very effective when subcutaneously injected, especially in anæmic women, and no unpleasant effect results from its use. He thus summarises his conclusions: (1) In certain vascular tracts (skin, muscles, intestine, bladder, pia mater, and spinal cord), ergot produces contraction of individual arteries, especially when it is injected directly into the veins; and this action is not directly influenced by division of the sympathetic. (2) Perhaps on account of the peculiar arrangement of the uterine vessels, contraction of these is not well marked. (3) Contractions of the whole uterus occur after injection of ergot, but these are somewhat later than contraction of the vessels in other organs, but before the contraction of the uterine vessels—indicated by the uterus becoming paler. (4) These contractions are probably caused by irritation of the brain (possibly anæmic), or of the motor centre of the uterus high up in the cord; for the contractions do not occur after severance of the spinal cord.

*Hellebore.*—H. Weppen [1] has extracted a bitter principle, to which he assigns the name *veratramarin*, from the root of white hellebore. It appears to be a glucoside. Its physiological and therapeutical properties have not yet been investigated.

*Digitalis.*—Drs. Brunton and Power [2] find that the diuretic action of this drug is not due to its power of increasing the blood-pressure in the arterial system, but that the secretion was least when the blood-pressure was highest, and most copious when the tension had fallen below the normal. The explanation they offer of these phenomena is, that digitalis probably stimulates the vaso-motor nerves generally, but affects those of the kidney more powerfully than those of other parts of the body. Thus it causes a moderate contraction of the systemic vessels, and raises the blood-pressure in them, but, at the same time, produces excessive contraction of the renal vessels, so as to stop the circulation in the kidneys and arrest the secretion of urine. As the action of the drugs on the systemic vessels passes off they relax, and the blood-pressure falls; but the renal arteries dilate more quickly and to a greater extent than the others. Additional evidence in favour of this explanation is afforded by the fact that the urine collected after the re-establishment of secretion contains albumen, just as Herrmann found it to do after mechanical arrest of the circulation through the renal arteries. It is possible, also, that the alterations in secretion may be partly due to the direct action of the drug on the secreting elements of the kidneys.

Widal [3] has made comparative researches with the newly discovered crystalline digitalin and also with the original article bearing the same name discovered by M. Homolle; the preparations being given to patients suffering from febrile diseases. His conclusions as to the therapeutic actions of the crystallised digitalin are summarised thus:—(1.) Crystallised digitalin may be given in typhus in doses of $\frac{1}{65}$th

[1] 'Arch. Pharm.' [3], ii, p. 101.
[2] 'Pr. Roy. Soc.,' xxii, p. 420.
[3] 'L'Union Méd.,' 1872, pp. 123, 126; 'Schmidt's Jahrb.,' clviii, p. 239.

grain without injury; and (2) since $\frac{1}{13}$th grain *in toto* induces no toxic symptoms, in severe cases the dose may be increased to $\frac{1}{32}$nd grain. (3.) The induction of a reduction of temperature demands larger doses than those which produce pulse-slowing. In typhus this latter may be brought about by $\frac{1}{65}$th grain, and after a dose of $\frac{1}{32}$nd—$\frac{1}{22}$nd grain the pulse became irregular. (4.) Doses of $\frac{1}{22}$nd—$\frac{1}{16}$th grain in the aggregate induce dilation of the pupils, disordered vision, and cerebral symptoms; and doses of $\frac{1}{9}$th grain produce nausea. (5.) The increased bodily temperature of febrile diseases is more readily lowered by the drug (in quantities of $\frac{1}{32}$nd—$\frac{1}{22}$nd grain) than the normal temperature of the body. In order to lower the febrile temperature to the normal $\frac{1}{16}$th to $\frac{1}{10}$th grain of digitalin is required to be administered. (6.) Digitalin does not increase the secretion of urine, but often diminishes it.

Homolle's digitalin produced effects as follows: (1.) Where there is an absence of pyrexia, in cardiac organic disease $\frac{1}{22}$nd—$\frac{1}{13}$th, and even $\frac{1}{6}$th grain, is required to induce a diminution in the frequency of the cardiac contractions; whilst with a pyrexial state a larger dose, $\frac{1}{6}$th to $\frac{1}{4}$th grain, is needed to produce the same effect. In these cases the pulse becomes hard, full, slow, and with large doses at last irregular, but never small. Irregularity and retardation of the pulse may occur so late as 10 or 15 days after the suspension of the medicament. (2.) The effect of Homolle's digitalin on nervous palpitations is much less than that of the crystallized article. (3.) Much larger doses ($\frac{1}{3}$ to $\frac{1}{2}$ grain) are required to reduce the febrile temperature than to slow the heart. Nausea and bilious vomiting were the only signs of digitalin-intoxication produced; collapse, &c., was never observed. (4.) In this absence of digitalinin-toxication and in the ease with which it is dispensed. lie its advantages over the direct administration of the plant. (5.) But digitalin is a much less energetic reducer of temperature than digitalis. (6.) Homolle's digitalin agrees in its therapeutical effects with crystallised digitalin, but the dose is twice or thrice as great. (7.) Diminution of the quantity of urine is often observed to have increased after the administration of digitalin. (8.) As an antipyretic and retarder of the circulation both kinds of digitalin are equally useful, and may be substituted for digitalis itself.

*The grape cure.*—Dr. T. H. Knauthe,[1] of Meran, Tyrol, describes in full the so-called grape cure, now extensively practised in wine-growing countries for the alleviation of tuberculous and other cachectic disorders. He enters fully into the chemistry of the grape, its nutritive value, physiological and therapeutical actions, and describes the mode in which the *fresh* grape is taken in quantities varying from three to eight pounds daily as a remedial agent. He remarks that much of the good attributed to the so-called grape cure may in reality be ascribed to pure air and hygiene.

*Treatment by compressed air.*—Dr. von Liebig,[2] of Reichenholt, gives an interesting account of his method of treatment by means of com-

[1] 'Schmidt's Jahrb.,' clviii, p. 167.
[2] 'Aerzt. Intel.,' Bl. 1869, p. 161.

pressed air; and Dr. Macpherson[1] has put the memoir into an English dress.

*Baths in typhus.*—Dr. W. Bresslauer[2] deduces the following conclusions from his observations on an epidemic of typhus fever in 1870-1871. (1.) A cold bath ($64\frac{1}{3}°$—$71\frac{1}{2}°$ Fahr.) of fifteen to twenty minutes' duration reduced the temperature in the axilla about $3\frac{1}{3}°$ Fahr. (2.) Immediately after the bath the temperature in the axilla began to rise till, in two or three hours, it had attained its original height; and this was exceeded at the customary time of the daily exacerbation. (3.) The frequency of the pulse was lowered by 20 or 30 beats per minute. (4.) The number of respirations was also diminished. This was very manifest where there was extensive affection of the lungs. The difference in the number of respirations was often as much as 10—25. (5.) The condition of the patients was much improved by the use of the bath, so that they felt much less lassitude, had less thirst, the sensorium was clearer; and where there was hypostasis of the lungs cough and expectoration became freer. (6.) The supervention of pulmonary hypostasis from decubitus or from metastasis in any manner, was not prevented by the cold water treatment. (7.) On the other hand, patients with severe lung affections were not injured by cold bathing. (8.) When typhus supervenes on mercurial tremors, the bath is contra-indicated, but not when typhus occurs in drunkards. (9.) Rigors occured, and the patients were the more susceptible to cold the more they were ill-nourished before the attack of fever, and the farther the disease had advanced and the greater the exhaustion of the patients. The resistance to cold and the abundance of the rigors were in inverse ratio. (10.) After the subsidence of the fever convalescence was very rapid. It is evident that after cold water treatment the patients passed more readily into the stage of convalescence than with another kind of treatment. (11.) Of a hundred cases treated in this manner only 10 per cent. died.

"Typhus" is taken as including true typhus and enteric fevers.

Scholz[3] in a report on the cold water treatment of enteric fever in the Bremen Hospital highly recommends the method of treatment from the good results in cases under his care. Of 125 cases occurring between the ages of 15 and 30, so treated, only five died, *i.e.* four per cent. The only contraindication to the use of the latter is intestinal hæmorrhage, on account of the changes incurred in moving the patient. In such cases iced water to the abdomen had beneficial effects. Cases of the disease occurring in drunkards do not seem to be fit subjects for this treatment, as the temperature never arises so high as in ordinary cases.

Bauer,[4] from a comparative statistical account of a great number of cases of typhus in the Munich Hospital, finds that—(1) The mortality in general is diminished by the cold water treatment. (2) The mor-

[1] 'Lond. Med. Rec.,' ii, p. 472.
[2] 'Stricker's Jahrb.,' f. 1871, p. 537.
[3] 'Deutsch. Archiv f. Klin. Med.,' ix, 176.
[4] 'Centralblatt f. d. Med. Wiss.,' 1872, 287.

tality is greatly increased by neglect of early antipyretic treatment and insufficient nourishment.

Götz[1] gives the following statistics of the cold water treatment of typhus and typhoid in the Vienna Hospital. In typhoid with the expectant treatment the mortality was 28·72 per cent.; under the cold water treatment only 15·4 per cent. In typhus, on the other hand, under the expectant treatment the mortality was 17·97 per cent.; while under the cold water treatment the mortality rose to 26·67.

Riegel[2] obtains good results from the cold water treatment of enteric fever. Of 156 cases treated in the Julius Hospital, in Würtzburg, during 1870 and 1871, only seven died, while in the same hospital before the introduction of this method of treatment the mortality was 20 per cent.

*Climatology.*—Dr. H. E. Richter[3] has written an exhaustive monograph on medicinal meteorology. It is, however, too long for abstraction.

*Analysis of drugs.*—Dr. G. Dragendorff,[4] of Dorpat, has published an invaluable treatise on the analysis and determination of the value of the chief drugs. He treats of aconite, belladonna, hyoscyamus, ipecacuanha, conium, tobacco, guarana, nux vomica, colchicum, opium, chelidonium, cantharides, and aloes. Each article contains much valuable information, interesting alike to the pharmaceutist and the physician.

[1] 'Prager Vrtljahrsschrift.,' 1872, 38.
[2] 'Deut. Arch. f. Klin. Med.,' ix, p. 433.
[3] 'Schmidt's Jahrb.,' clxiii, p. 65, clxiv, p. 57.
[4] 'Die Chem. Werthbestimmung Starkwirk, Droguen u. Arzneimisch.' St. Petersburg, 1874.

# REPORT ON PUBLIC HEALTH.

BY

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### *Mortality Statistics.*

H. Eulenberg[1] contributes some valuable observations on statistics of mortality which are well worthy of perusal by those interested in the subject. He proposes a form of death certificate to be signed by the medical attendant which will, we fear, however valuable it might prove, not be speedily adopted in this country. We need only say that it occupies more than an octavo page, and includes twelve questions, many of them embracing several heads.

### *Sanitary State of Paris and Metz during the Siege of* 1870—71.

M. Bouchardat[2] furnishes a paper on this topic. He had the advantage of himself witnessing the siege of Paris, and his son that of the siege of Metz. The details with regard to Metz are very meagre, whilst those relating to Paris are full.

In Metz the deaths among the civil population rose steadily from 43 in the week ending August 28th, 1871, to 166 in the week ending October 30th. In the succeeding week they fell to 34, the average number of deaths during the preceding eleven weeks of the siege having been 101 per week. We exclude for obvious reasons the deaths among the military.

### *Barracks and Permanent Camps.*

Dr. Angel Marvaud[3] contributes an exhaustive essay on barracks and permanent camps, and their hygienic arrangements, embodying much of the experience gained in the late war and in the siege of Paris.

### *Contamination of Potable Waters.*

M. H. Gaultier de Claubry[4] gives some striking and unusual cases

[1] 'Vrtljhrsschrft. f. Gericht. Med.,' N. F., xv, p. 271.
[2] 'Ann. de Thérapeut.,' 31e et 32e an, p. 209.
[3] 'Ann. d'Hyg.,' t. xxxix, pp. 70, 241.
[4] Ibid., p. 309.

of contamination of drinking waters—in one case by refuse from a sugar factory, grape sugar and unusual quantities of common salt being formed with water, which had an offensive odour ; in another instance by coal-gas. In a third by sulpho-glyceric acid from the manufacture of stearin candles ; in a fourth by salts of manganese ; and in a fifth by the urine of cows, urea being actually extracted in quantity from the water.

*Disinfection of the Morgue in Paris.*—This establishment for the reception of the dead bodies taken from the Seine is now found[1] to be more effectually disinfected by the use of a solution of carbolic acid in water (1-2000th) than formerly by the abundant use of charcoal ; and at three fourths the expense previously incurred.

*Influence of violet light upon growth.*—M. Poey[2] details striking facts relative to the favorable influence exercised upon the growth of animals and vegetables by violet light. It having been observed that the growth of vines was greatly promoted, and the crop of grapes largely increased, by growing the plants beneath violet glass, animals—pigs and calves—were reared beneath similarly coloured glass ; and comparative trials were made with coloured and uncoloured glass. It was found that the animals kept beneath the violet glass increased much more rapidly in size and weight than those beneath uncoloured glass.

## *Smallpox.*

*Smallpox propagated by vaccination.*—An interesting outbreak of variola propagated by vaccination has been brought under notice by Dr. Alex. Collie.[3] There is little doubt that variolous virus was in the first instance inoculated along with vaccine virus, although the child that serve to vaccinate the first vaccinifer was said to be free from smallpox eruption.

The following outline of a vaccination bill has been published at Königsberg, and has been drawn up by Prof. Bohn, and Drs. J. Möller and Pincus. It is valuable as embodying the principles of measures which German sanitarians recommend, guided by continental experience.

1. Every child that has attained the age of three months shall be vaccinated before it shall have reached the age of one year. Voluntary vaccination of children under three months of age shall be permitted. On the outbreak of an epidemic of smallpox § 12 shall be put in force.

2. Parents, foster-parents, and guardians of children liable to vaccination shall have them vaccinated within the proper legal period, or shall furnish to the police the certificate of a duly qualified medical practitioner, stating *on what medical grounds* the child is not in a fit state for the performance of vaccination. A definite release from vaccination shall be granted (1) when the child has been efficiently

[1] 'Ann. d'Hyg.,' t. xxiv, p. 320.
[2] "Journ. des Connais. Méd.," quoted in 'Ann. d'Hyg.,' t. xxxix, p. 429.
[3] 'Lond. Med. Rec.,' p. 637, quoted from 'Gaz. Méd. de Strasbourg,' July, 1874.
[4] 'Stricker's Jahrb.,' f. 1871, p. 336.

vaccinated, (2) when the operation has been thrice performed without results, (3) when it has had natural smallpox.

3. Should the parents, &c., neglect to have a child vaccinated within the appointed time, they shall be liable to a penalty of 1—5 thalers (3—15 shillings), which in the event of renewed neglect shall be doubled.

4. On the eighth day the vaccinated child shall be again taken to the public vaccinator, in order that it may be seen whether the vaccination has taken effect; and only in the event of such being the case can the child be received into a public or private school.

5. In order to ensure compliance with the above obligations, the public vaccination stations shall be opened every year subsequent to the 1st May. Private stations are still to be permitted.

6 and 7 relate to the persons appointed to conduct public vaccinations, and to the division of districts, the salaries to be paid, &c.

8. Relates to the mode of keeping the registers of vaccination.

9. On attaining the age of twelve years the individual is obliged to be re-vaccinated before the completion of the school-age.

10. Relates to the performance of re-vaccination.

11. A certificate of re-vaccination must be produced, (*a*) at marriage, (*b*) on going into service, or being bound apprentice, (*c*) on competing for a public appointment, (*d*) on changing residence.

12. On the outbreak of small pox or of varioloid in any place, an extraordinary public vaccination shall be instituted, which shall embrace all children declared unsecure under § 2, and all adults who have not been re-vaccinated; and every one without distinction shall, if he or she wishes it, be voluntarily vaccinated at the public expense.

13. Relates to payments for these extraordinary vaccinations, and,

14. To the establishment of stations for the regular supply of vaccine-lymph.

*The Over-Darwen epidemic.*—In the autumn of 1874 Over-Darwen suffered from an unusually virulent and wide-spread epidemic of enteric fever. The origin of the outbreak was, according to Dr. Stevens, the local government board medical inspector, very simple. The first case of enteric fever imported into the Over-Darwen occurred in a house at a considerable distance from the town. The patient contracted the fever whilst away from home, came home, and died of the fever. As the house in which he died was distant from the town, and its sanitary arrangements apparently good, and as there was no known communication from the house with the town's water supply, attention was not drawn to this case till the epidemic had in a great measure subsided. Over-Darwen drew its water supply from a distant and unpolluted source, the water being brought in covered channels. It was subsequently proved that the drain of the closet into which the excreta of the first typhoid patient was passed emptied itself into a neighbouring field. Through this field passed the main conveying the water-supply for most of the residents in the town. As the pipe and the drains came into contact, special precautions had been taken to prevent infiltration of sewage into the water, but it was found that just above the spot where the drain had been cemented a leak had occurred,

which had allowed the contents of the drain to be sucked into the main, and thus typhoid excreta was passed into the town water supply. 2035 people were attacked with enteric fever within a very short period, and of these 104 died.

*Typhoid and drinking water.*—Dr. R. Cobelli,[1] of Roveredo, has made, through Dr. Max v. Pettenkofer, an important communication bearing upon the relations of typhoid to drinking water. He finds that the town of Roveredo has not been freed from typhoid by the introduction of a drinking water derived from a source (the Spino well) situated without the town. The introduction of this water for domestic use has had, he asserts, no sensible influence in diminishing the mortality from enteric fever, nor in diminishing the general mortality of the place. Moreover, Roveredo suffered, in 1872, an epidemic of typhoid, spite of its new and presumably purer water supply.

Pettenkofer[2] himself, in a long article, combats the notion that the prevalent drinking water theory is competent to account for the prevalence of typhoid; and he reiterates, with his accustomed vigour, all that he has before said, and adds something more relative to the necessity of a local and a seasonal cause, other than, and in addition to, the specific typhoid stool, in order to render typhoid in any sense contagious. He quotes, with approval, Adolph Vogt's dictum that the drinking water theory bars the way to and is the death of sanitary reform.

Dr. Max von Pettenkofer[3] also makes a further vigorous onslaught upon the received views respecting the connection between enteric fever and drinking water; *i.e.*, that endemic and epidemic typhoid is caused by the ingestion of impure drinking water. He criticises in his peculiar sarcastic style those who, when all evidence of the origin of an epidemic of enteric fever from the use of impure water fails, resort to drains, water-closets, and foul emanations from filth as additional sources of the disease. He appears to regard these supplementary theories much in the same light as a modern astronomer would regard the theory of cycles and epicycles.

Pettenkofer lays down, as fundamental axioms, that enteric fever is a specific disease of man, which, in all probability, has its origin in so-called infective matter, which never arises spontaneously in the healthy organism, but is always imported from without. Although no one has ever isolated this matter, we conclude that there is such a material, both from its pathological actions and from analogy. He appears to regard enteric fever as neither purely contagious (in the older sense of the term), like smallpox, nor miasmatic. His great *pièce de résistance* is typhoid fever in Munich, an outbreak of which, in 1871-2, he proceeds to describe, after enunciating the drinking water theory in its most naked form, and after exposing its alleged deficiencies.

*River pollution.*—In the Fifth Report of the River Pollution Com-

1 'Ztschr. f. Biologie,' ix, p. 550.
2 Ibid., x, p. 439.
3 Ibid.

missioners,[1] the pollution arising from mining operations and metal manufactures is dealt with. The degree of pollution arising from these causes was found to vary greatly. The chief pollution arises from the suspended matters thrown into the streams; but in the case of metal manufactures considerable quantites of acid waste are allowed to flow into the water-courses. A system of subsidence is recommended, as in this way the greater portion of the suspended matter from mining operations is speedily removed; whilst the acid refuse ought to be saved and made remunerative. It is advised that coal be treated as a mineral. The Commissioners advise that the following liquids be deemed polluting, and inadmissible into any stream :—

(*a*) Any liquid which has not been subjected to perfect rest in subsidence ponds of sufficient size for a period of at least six hours, or which, having been subjected to subsidence, contains in suspension more than one part by weight of dry organic matter in 100,000 parts by weight of the liquid, or which, not having been so subjected to subsidence, contains in suspension more than three parts by weight of dry mineral matter, or one part by weight of dry organic matter in 100,000 parts by weight of the liquid.

(*b*) Any liquid containing in solution more than two parts by weight of organic carbon, or three parts by weight of organic nitrogen in 100,000 parts by weight.

(*c*) Any liquid which shall exhibit by daylight a distinct colour when a stratum of it one inch deep is placed in a white porcelain or earthenware vessel.

(*d*) Any liquid which contains in solution in 100,000 parts by weight more than two parts by weight of any metal except calcium, magnesium, potassium, and sodium.

(*e*) Any liquid which in 100,000 parts by weight contains, whether in solution or suspension, in chemical combination or otherwise, more than 0·5 part by weight of metallic arsenic.

(*f*) Any liquid which, after acidification with sulphuric acid, contains in 100,000 parts by weight more than one part by weight of free chlorine.

(*g*) Any liquid which contains in 100,000 parts by weight more than one part by weight of sulphur, in the condition either of sulphuretted hydrogen or of a soluble sulphuret.

(*h*) Any liquid possessing an acidity greater than that which is produced by adding two parts by weight of real muriatic acid to 1000 parts by weight of distilled water.

(*i*) Any liquid possessing an alkalinity greater than that produced by adding one part by weight of dry caustic soda to 1000 parts by weight of distilled water.

(*k*) Any liquid exhibiting a film of petroleum or hydrocarbon oil upon its surface, or containing in suspension in 100,000 parts more than 0·5 part of such oil.

The Commissioners are of opinion that inspectors should be appointed, and that a law to prevent the pollution of rivers and streams should—

[1] 'Blue Book.'

(1) Absolutely forbid under adequate penalties the casting of solid matters into river channels.

(2) Enact the foregoing standards of purity, below which any liquid discharges into water courses should, with the exceptions already mentioned, be forbidden.

(3) Give power to all manufacturers in towns, except those of gas, paraffin oil, pyroligneous acid, animal charcoal, tin-plate, and galvanised iron, to discharge their drainage waters into the town sewers under suitable regulations.

(4) Confer additional powers on corporations, local boards, manufacturers, and mine owners to take land compulsorily under provisional order for the purpose of storing their waste refuse, or of cleansing sewage or other foul liquids, either by irrigation, filtration, or otherwise.

*Impure milk as a source of disease.*[1]—Dr. T. P. Crothers, of Albany, New York, publishes a most instructive essay on impure milk as a source of disease. The article is of especial value when read by the light of the facts of late ascertained respecting the propagation of enteric fever by means of milk adulterated with water. Dr. Crothers thus summarises his conclusions:—1. Milk coming from ill-nourished, half-fed cows, having no surplus of food beyond the minimum requirements of nature, is injurious, and may be the source of disease. 2. Cows deprived of abundance of good water, ventilation, and exercise secrete impure and dangerous milk, which may be loaded with gases, animalculæ and fever germs. 3. The milk from old, debilitated cows fed on grains or overstimulating food, is also imperfect and unhealthy to a variable degree. 4. The nervous condition of the cow at the time of milking determines the purity of the milk. If this be neglected the milk is an active source of disease, positively dangerous and fatal. 5. Milk adulterated with water is always liable to contain poisonous elements, particularly so in the spring of the year, when all spring and well water is more or less contaminated with surface drainage. This is the most common adulteration and probably the most dangerous. 6. Experience has shown that the milk of one cow, unless the exact circumstances and conditions are known, is not superior to the aggregate milk of the whole dairy. 7. Facts show that milk is the prolific source of many diseases now obscure, and unless careful inquiry is made into the condition and surroundings from which we receive our supply, we neglect a sanitary measure of great importance.

## *Cholera.*

*Cholera in Northern India.*—After a period of comparative immunity during 1870-71, Northern India was in 1872 again affected with cholera, and the deaths registered during the year 1872 were 165,458, of which no less than 50,565 occurred in the North-Western Provinces. The epidemic has been reported on by Dr. Cunningham,[2] the Sanitary Commissioner, who is a strong opponent of the water-theory in its simplest form. Against it Dr. Cunningham quotes several cases, and

[1] 'Lond. Med. Rec.,' ii, p. 528, from the 'Philadelphia Med. and Surg. Reporter.'
[2] 'Report on the Cholera Epidemic of 1872 in Northern India.'

especially that of the camp at Peshawur, from which the troops were rapidly removed to Bara on the appearance of cholera, and furnished with drinking water from a rapid stream; but notwithstanding this precaution the disease did not abate. Again, at Peshawur, before the troops were removed to Bara, the artillery whose lines were at the extreme end of the stream, where it was to be expected that pollution would be greatest, escaped almost entirely. He also asks, how is it that in these days of rapid railway travelling the march of cholera is no quicker than it was before railways were introduced into India? Why, too, is it more prevalent in the North-Western Provinces and in Oude, where there are no railways, and where communication is difficult, than in almost any other point of India? He states that there is no evidence to show that there is any risk in attending on the sick when removed from the locality in which they were attacked; and he argues against the theory of importation.

The localisation of the disease was very remarkable. At Agra, in St. Peter's College, an outbreak of great virulence suddenly broke out on July 5th, and the boys had to be sent off to their respective homes; yet the disease hardly showed itself among the girls in the convent immediately adjacent to the College. We have already referred to the immunity of the artillery, though hemmed in on one side by a regiment, and on the other by a bazaar, in both of which the disease raged. In nearly all cases of infection movement from the infected locality has proved of the greatest service.

The system of quarantine is emphatically condemned by Dr. Cunningham as worse than useless. Much may be done, however, he says, by sanitary improvements to prevent the spread of cholera as an epidemic. Reform, and especially reform in the matter of drainage and water supply, is the lesson which the history of this epidemic and of all other epidemics has taught us. In answer to those who point to the prevalence of cholera among Europeans, who are well-fed, housed, and cared for, while the native, living in circumstances of filth, overcrowding, and every sanitary defect, escapes almost free, Dr. Cunningham argues that it is not so much the distribution as the incidence of the disease which can be prevented by these reforms; and he appeals in support of this to the experience derived from the gaols in India.

*Cholera in Europe in* 1873.—In the year 1873 there was a wide distribution of cholera in Europe; but the disease became actively diffusive in but few localities. The extension of the disease is believed to have been a continuation of the outbreak which commenced in South Russia in 1869.

During the winter of 1872-3 cholera prevailed through some of the Austrian Provinces, notably in Galicia and in parts of Poland. In the spring of 1873 it had become disseminated over Hungary, and was active in some parts of Galicia and Bohemia. In May cholera began to spread from the above-named centres into the neighbouring districts, and appeared on the Lower Danube. The disease passed over the Italian frontier into Venetia, notwithstanding the enforcement of quarantine. It was carried down the Elbe by raftsmen, and appeared at Dresden; and the disease also descended the Vistula. In June cholera continued

to follow the courses of the Lower Danube and of the Vistula, and shortly made its way into Southern Italy. At the end of June, if not earlier, cholera also appeared in Vienna.

In July the epidemic was widely spread along the chief lines of railway and river traffic in the east, south, and west of Europe, and the disease appeared in Berlin on the 21st. It was also carried across the Sound to Helsingberg, a small port in Sweden. In August it attained its greatest activity, and this country was seriously threatened by the Baltic ports. Indeed England did not escape infection. Towards the end of July the disease was imported into London from Hamburg, and of the emigrants on board the infecting vessel 28 cases of sickness occurred, and 8 deaths, nearly if not all, from cholera or choleraic diarrhœa. In September, October, and November, single cases were also imported into London; Southampton had one case from a French port, and Liverpool had several isolated cases imported from Hamburg *viâ* Hull. Later in the year cholera subsided, and during 1874 may be said to have been dormant in Europe.

*The International Sanitary Conference of* 1874 *in Vienna.*[1]—An International Sanitary Conference was held in Vienna in July, 1874. The following twenty countries were represented at the conference: Austro-Hungary, Belgium, Denmark, Egypt, England, France, Germany, Greece, Holland, Italy, Luxemburg, Norway, Persia, Portugal, Roumania, Russia, Servia, Sweden, Switzerland, and Turkey; and a programme of twenty-six questions was submitted to the Conference and discussed seriatim, as follows:

I. *Development and spread of cholera.*—1. Is contagious (epidemic) cholera only developed spontaneously in India, and introduced always into foreign countries from without; or does it also occur endemically in countries beyond India, and in which? The congress agreed in the opinion that cholera has an autochthonous character in no part of the world beyond India; that it has not become endemic in Europe, but that the epidemics of the disease are to be regarded as having had their origin in India. 2. Is cholera spread by man? The congress arrived at the general conclusion that cholera is communicated by human intercourse. 3. Can cholera be communicated by articles of ordinary use coming from infected places, especially those which cholera patients have worn? This question was answered in the affirmative. 4. Can cholera be communicated by articles of food, or (5) by living animals? These two questions gave rise to a long debate. Drs. Pettenkofer (Münich), and Hirsch (Berlin), and Zehender (Zürich), gave affirmative answers; Drs. Dickson (Constantinople) and Drasche (Vienna) denied or limited the possibility of cholera being spread in this way. The congress finally concluded that these modes of commnnication were possible. 6. Can cholera be communicated by the transport of merchandise? No conclusion appears have been arrived at. 7. Can cholera be communicated by the dead bodies of cholera patients? This question was unanimously answered in the affirmative. 8. Can cholera be carried to a distance by the atmospheric air alone? The conference

[1] Abstract in 'Lond. Med. Rec.,' ii, p. 477, from 'Allgem. Wien. Med. Zeit.,' and 'Allgem. Med. Central. Zeit.,' 1874.

accepted the decision of the conference at Constantinople, in 1866, that it is a law to which hitherto no exception is known, that cholera never advances more rapidly than can be accounted for by the communication between one place and another. Hitherto there has been a want of evidence in favour of the conveyance of cholera poison by the atmosphere. 9. Has the access of fresh air to the agent producing or spreading cholera any influence on its infectious property, or not? This question was unanimously answered in the affirmative, in the sense of the conclusion arrived at by the Constantinople Conference of 1866, that the choleraic principle very rapidly loses its deleterious action in fresh air; but that, on the other hand, its power is maintained in activity for an unlimited time under special conditions of seclusion. 10. What is the length of the period of incubation in a case of cholera infection? On this a long discussion took place, which was begun by Dr. von Pettenkofer. He regarded it as not yet ripe for a positive, and said that therefore only an approximate determination of the period could be given. He had found an average period of fourteen days, but the experience already attained was not sufficient to determine the maximum period of incubation. Dr. Drasche had noted the average duration of the incubation as from eight to ten days. The period, however, approached that named by Pettenkofer, if the calculations were made from the day of death. Dr. Zehender was in favour of a much shorter period of incubation, as a general rule, though there were cases where the incubation was of longer duration. Dr. Dickson considered that the subject was not yet ripe for discussion. Dr Kjerulf (Christiania) thought that the incubative period was only from two to five days. Dr. Orphanides (Athens) had experienced the incubative period to be from five to seven days, and Dr. Schleisner (Copenhagen) three or four days. Dr. Schmidt (Luxemburg) had known a case where the incubative period was so long as eighteen days. Dr. Berlin (Sweden) maintained that the period was four days; whilst Drs. Semmola (Naples) and Souza-Martin (Lisbon) believed that it was very short, and that it was dependent upon the influence of climate. The majority of the members adopted the opinion of the conference at Constantinople, that the period of incubation is very short, rarely exceeding a few days. 11. Is a disinfecting agent or method known by which the cholera spreading agent can be rendered inert or weakened? If there be such an agent, what is it? The conclusion was arrived at that as yet we know neither any agent nor means of disinfection which destroys with certainty the cholera germ adhering to man as object. The possibility, however, of discovering such an agent or method was not denied. The utility of disinfection in combination with other sanitary measures was, however, unanimously recognised.

II. *Quarantine against cholera.*—12. Ought land quarantine establishments to be instituted against cholera? 13. If so, (*a*) where? (*b*) at what time, and in what circumstances? (*c*) with what building and administrative arrangements? (*d*) by what means is cholera to be prevented from entering the country by other ways than through the quarantine establishments? 14. Should river quarantine establishments be instituted against cholera? 15. If so (as in No. 13). 16.

Should sea quarantine establishments be instituted or maintained against cholera? 17. If so (as in No. 13). 18. What dispositions in regard to persons should be made with free intercourse and continuancy? 19. How long (in case observations or quarantine should have been determined on) ought healthy persons to be subjected to observation or special quarantine? and how long ought the sick to be detained in hospital? 20. Under what conditions, and according to what calculations, is the entrance of ships into quarantine to be reckoned? 21. What regulations with respect to (*a*) personal effects, (*b*) living animals, (*c*) merchandise, (*d*) food, (*e*) means of conveyance (*e.g.*, ships, waggons, &c.) ought to be permitted with regard to permissions of intercourse without previous disinfection or after disinfection has taken place? 22. What would be the means of disinfection in regard to (*a*) persons, (*b*) personal effects, (*c*) living animals, (*d*) merchandise, (*e*) means of transport? On these questions the conference arrived at the following conclusions: "Considering that, since intercourse in the present day has made various advances, and is steadily making progress, land quarantine is impracticable, useless, and injurious to the interests of commerce and intercourse; the question whether land qarantine institutions ought to be established is answered in the negative." Hence the secondary questions (13) fall to the ground. On the subject of sea quarantine, a report was presented by a committee that had been appointed to examine the subject, consisting of Prof. Hirsch, Dr. von Alber Glanstätten, Dr. H. von Kapelle (Holland), Prof. Semmola, and Dr. E. Seaton (London).

The following propositions with regard to sea quarantine were finally adopted.

1. In seaports in which there are no quarantine institutions, as in those of the Red and Caspian Seas, a sanitary board shall be constituted, consisting of medical men and government officials, with a staff of assistants. The number of members of the board belonging to each class is to be regulated according to the amount of shipping intercourse in each port; but, under all circumstances, it must be sufficient to ensure a speedy dealing with the ship and crew, as well as with the passengers. The chief of the sanitary board must keep himself in official communication with cholera-infected ports, which may come into contact through intercourse by ships with that to which he belongs.

2. Every ship arriving from an unsuspected port, which the captain shall have declared on oath neither to have touched at an infected port, nor to have had direct communication with an infected vessel, and on board which no suspected or distinct cases of or deaths from cholera shall have occurred during the voyage is to have free *pratique*.

3. All ships coming from infected or suspected ports, as well as ships which come from uninfected ports, but which during the voyage have touched at an infected place, or held communication with an infected ship, or on which, during the voyage, cases of illness or death suspected to be from cholera have occurred, shall, on arrival, be subjected as soon as possible to a strict medical examination as to the state of health of their crew and passengers. The captain, ships' officers, and medical officers (when there is one), shall be bound to report to the examining

physician any suspicious symptoms of illness on board which may have come to their knowledge. If the medical investigation show that no case of illness in any way suspicious exists among the crew and passengers, the ship, with all that it carries, is to be immediately admitted to free *pratique*.

4. The bodies of those who have died of cholera, as well as all cholera-patients found in a ship newly arrived, are to be taken on shore; the former must be immediately buried, the latter placed in a hospital always kept in readiness for their reception, or, when there is not one, in some house or barrack or isolated place, or in as isolated a place as possible in the country. If any suspected cases of cholera or deaths have occurred during the voyage, or if suspected or decided cases of cholera or bodies whose death is traceable with probability or certainty to cholera be found on board a ship on its arrival in port, the crew and passengers, after the removal of the sick and dead, shall undergo a process of cleansing and disinfection under the supervision of the board.

5. At the same time all the clothes worn by healthy individuals, or used by them during the voyage, as well as all their other effects, are to undergo a thorough disinfection in a room arranged for the purpose, under the strict control of the board. After disinfection has been carried out the effects will be given back to their possessors, who, in the meantime, will have taken a cleansing bath, and they will then be perfectly free.

6. After the removal of all persons, except those absolutely necessary for the service of the ship, any vessel arriving under the conditions named in section 3 is to be subjected in all its compartments to a thorough disinfection.

7. The goods landed from the disinfected ship, even the rags and objects used by the cholera-patients, after being properly disinfected, are to be considered innocuous.

A committee was appointed to discuss regulations for quarantine establishments in those countries which might erect them. The Dutch and Italian representatives declined to act on the committee, as it was not consistent with their views on the inutility of sea quarantine.

The following rules were drawn up by the committee and accepted by the conference:

1. Vessels from infected ports must undergo observation, which, according to circumstances, may last from one to seven days. In the eastern ports of Europe and elsewhere, though only in certain exceptional cases, the surveillance may be prolonged to ten days.

2. When the Board of Health have sufficient proof that during the voyage no case of cholera, or of any other suspected disease, has occurred on board, the observation is to last three to seven days, reckoned from the medical inspection.

If under these circumstances the voyage have lasted at least seven days, the surveillance is to be limited to twenty-four hours, to give time for the examination and disinfection considered as necessary. In cases under this category the observation may be held on board as long as no case of cholera or suspicious circumstance occurs, and when the hygienic condi-

tions of the ship allow it. In these cases the unloading of the ship for disinfection is not necessary.

3. When, during the passage or after the ship's arrival, cases of cholera or of other suspected disease occur, the surveillance for those who are not ill is to last seven full days, beginning from their isolation in a hospital or whatever place is assigned to them.

The sick will be disembarked and properly attended to in a place separated from the persons under surveillance. The ship and all objects belonging to it are to undergo a thorough disinfection, after which persons obliged to remain on board will be subjected to surveillance for seven days.

4. Vessels from suspected ports, that is, such as lie near places or ports where cholera prevails, and are in intercourse with them, may be subjected to observation lasting at most five days, provided that no suspicious case of disease have occurred on board.

5. The quarantine of emigrant and pilgrim ships, and in general all vessels whose condition is deemed especially dangerous to the public health, shall be carried out under particular regulations which the Board of Health will decide.

6. When the conditions of a place do not allow the prescribed regulations to be carried out, the infected ship is to be despatched to the nearest hospital after it has received all the assistance its condition may require.

7. Ships coming from infected ports which have touched at a port *en route*, and have left it without undergoing quarantine, will be treated as ships coming from an infected harbour.

8. In cases of mere suspicion the Sanitary Board may order special disinfection regulations.

9. In ports where cholera is epidemic, full quarantine is not to be kept, but means of disinfection are to be strictly applied.

*Sea.*—Quarantine can afford an effectual preservation against cholera in those seaports only which may be regarded as the special gates of exit for cholera in its spread towards Europe by the way of sea. These quarantines must be international institutions. When cholera has once passed beyond these points, quarantines are without value in the ports of the European continent, as travelling on land remains free and deprives them of their value. Under these circumstances, in place of quarantine in Europe ports, there should be instituted a strict system of examination of every ship arriving from an infected locality. The regulations which the committee have drawn up with regard to the carrying out of this system of examination with a view to existing maritime intercourse for the purpose of preventing the spread of cholera, recommend the establishment of a sanitary board partly composed of medical men and partly of administrative officials in every seaport open to intercourse, whether cholera is threatened or has been introduced. This board shall receive official information as to ships coming from infected ports, as well as all ships which during the voyage have touched at infected ports, or communicated with infected ships, or on board of which cases of illness or death suspected to be from cholera have occurred (regarding which the captain and officers must

be bound under penalty to give true information), and it shall then subject the crew and passengers to a careful medical examination with regard to the state of their health; such examination to comprise not only the individuals, but also their effects, the ship's cargo, and the ship itself. If no cases of illness have occurred on board, the ship is to be at once admitted to free *pratique;* if the contrary be the case, the bodies of those who have died from cholera are immediately to be taken on shore and buried, the patients taken to an hospital, and the remainder of the crew and passengers, under the supervision of the board, subjected to cleaning by means of baths containing freshly dissolved lime. At the same time all the clothes which healthy persons have used during the voyage, and their other effects, are to be subjected to the disinfecting action of sulphurous acid; and the ship also after the removal of all on board shall be subjected in all its compartments to a similar disinfection. The goods disembarked from the ship are to be admitted at once to free *pratique.*

If there be no accommodation for the sick on land, the ship, with the patients, the cargo, and the necessary complement of crew, must remain in an appointed place under observation, until the cases of cholera have ended either in recovery or in death.

*Cholera on board ship.*—Dr. Otto Kupfer[1] relates an interesting outbreak of cholera on board the emigrant ship Francisca. He fails, however, to prove what he asserts, that the cholera arose spontaneously on board the vessel without direct importation of the disease.

*Cholera and water supply.*—Dr. von Pettenkofer is never wearied in attacking what he believes to be the prevalent and erroneous views held with regard to the spread of cholera, and in reiterating and enforcing his own views upon the question. His opinions, though now no longer novel, have in this country, perhaps, not received the attentive consideration which they merit. In a recent and more popular form than in the works[2] we have formerly noticed in these pages, Pettenkofer laid down in a lucid and vigorous manner these views which are peculiarly his own; views which have attracted no little attention, and provoked much discussion.

Commencing with the mode in which cholera is propagated, Pettenkofer points out that something more than a specific cholera-germ, originating in India, and connected in some way with human intercourse, is required in order to account for the spread of the disease; some element external to the human body, not present at all times nor in all places, and in some way connected with geographical site. The specific germ, the local predisposition, and the seasonal or temporal momentum or disposition, must all be combined in a favorable manner in order to propagate cholera. There must also be the individual predisposition.

Under the head of traffic he points out how impossible it is so effectually to limit this so far as to stop the spread of cholera. Nevertheless, although the stoppage of traffic is an impossibility, it should be regarded as a practical matter to keep as free as possible

[1] 'Vrtljhrsschrift f. Gerichtl. Med.,' n. f. xviii, p. 85.

[2] 'Ztschr. f. Biologie,' Bd. i, ii, iv; 'Boden u. Grundwasser,' &c., Munich, 1869; 'Fünf Fragen über Cholera,' Munich, 1869, &c.

from the contamination of cholera-poison. In the rare, and, as he says, exceptional cases, in which the disease seems to arise from pure contagion, as when a person goes from an infected locality to a place free from cholera, and falls sick there, and subsequently other persons connected with him contract the disease, all the facts can, as Pettenkofer states, be explained by assuming that the patient had carried so much of the poison with him from the cholera district that there was enough to infect the other persons attacked. Such cases have usually been cited as proofs of the contagiousness of cholera; but they have been most usually noticed in places which are not susceptible to cholera in an epidemic form; so that the disease has not spread beyond a small group of cases.

Dirty linen, and damp, watery, slimy articles of food are referred to as articles specially liable to act as carriers of the specific cholera poison. As regards human excrements as carriers of the poison, Pettenkofer is of opinion that the latest investigations, especially in the home of cholera, India, have considerably diminished the common belief that the poison is localised in the bowel excretions. It does not follow, nevertheless, that we are justified in neglecting the bowel secretions, as of no importance with regard to cholera epidemics. It is, however, laid down that nothing can be expected from mere disinfection of cholera dejecta. Attention must also be given to local and temporal conditions, for these are all important. The influence of the season of the year upon the epidemic extension of cholera is well drawn out and illustrated.

Prominent among the local causes of the propagation of cholera is *ground-water*, sock-water, or soil-water — a term which has been accurately defined by Pettenkofer, but which is much misunderstood. By ground-water Pettenkofer means that water which entirely fills the interstices of the subsoil, so as to render it quite impervious to air. The moisture in the pervious soil overlying this water-logged stratum is not ground-water. The rise and fall of the ground-water with variations of rainfall, season of the year, &c., may be taken as a measure of the dampness of the soil above it, and Pettenkofer has observed its variations for this purpose and no other. The soil above the level of the ground-water is permeated by *ground-air*, which is found to vary considerably in its percentage of carbonic acid[1] at different periods of the year, the highest percentage being in the summer and autumn months, when cholera is most prevalent. It is obvious that a relatively large proportion of carbonic acid in the ground-air indicates rapid changes in the organic matters impregnating the soil. That portion of the soil overlying the ground-water, and permeated by ground-air, forms the nidus in which the cholera poison vegetates and produces the specific and fully developed cholera germ. Cholera is perhaps as dependent upon ground-water as is enteric fever, which in Münich, for sixteen years, has been observed to rise and fall inversely as the ground-water in the soil beneath the city rises and falls. The fluctuations in the level of the ground-water are important only as showing the variations in the moisture of the superincumbent layers, and the

[1] Fleck, 'Ztschr. f. Biologie.'

importance of these variations in moisture consists in their hastening or retarding organic processes in the soil; whilst the ground-water itself may be quite quiescent in the matter.

Pettenkofer, holding these views, very naturally advocates very stringent provisions being adopted to prevent the fouling of the soil in towns by any kind of organic matter, and the rigid exclusion of all excreta from it. Every precaution should be taken before the outbreak of an epidemic, since all arrangements relating to the protection of the soil from contamination, or its improved drainage, will be useless if not carried out before the outbreak of an epidemic. It requires time and care to render an impure soil uncontaminated.

An instance in which the substitution of abundant pure for contaminated water-supply seemed to produce in two ways an almost complete immunity from cholera is given by Dr. Sernon.[1] Dantzic is a city which, in all former epidemics of cholera, has been heavily smitten, in common with Königsberg. In 1871 the cholera spread from Russia, and as usual, entered Königsberg, where from the time of the importation (Einscheppung) of the first case on the 26th July, to the 14th October, 2280 persons were attacked and 1568 died. Now, as in the former epidemic, Dantzic lost almost as many as Königsberg, great fears were entertained that the same result would also now follow. But, on the contrary, although the disease was imported into Dantzic several times, there were, from the 1st August (date of importation) to the 3rd October (date of last case), only 60 cases and 46 deaths out of 90,000 inhabitants. What, then, was the cause of this immunity? Two great sanitary works had been going on in Dantzic: great drainage works, planned by Mr. Baldwin Latham, had been nearly but not quite completed when the cholera appeared. Although these new sewers had not been used, and therefore could have so far no effect, they had one influence: they had dried the soil, and greatly lowered the level of the ground-water, as was proved by measurements. The soil was, therefore, in the exact condition when, according to Pettenkofer, it should have aided the outbreak of cholera. Yet it did not do so. As Sernon says, there were given all conditions for Pettenkofer's Y, and as there was no want of X, it was feared that an outbreak of the worst kind would take place in this town notorious for the prevalence of cholera. But it was otherwise. An epidemic so unimportant that it could hardly be called one, formed a contrast to the Königsberg as to all former Dantzic epidemics. We obtain thus a new argument against the general applicability of Pettenkofer's doctrine, which was also strengthened by the later direct water-level measurement (p. 181). The second sanitary work was the supply of extremely pure water, which had been completed and was in use at the time. Was this the preservative agency? To us, in England, it will appear exceedingly probable, and Sernon asserts this to a certain extent. Yet he hesitates to ascribe it only to this, as it seemed as if the cholera had, during 1871, less tendency to spread and develope than usual, and, in addition, the abundant supply of water permitted a constant washing

[1] 'Deut. Vrtljhrschr. f. Off. Gesundheit.,' iv, p. 169; taken from 'Army Med. Rept.' for 1872, Appendix I, p. 254.

out of the old sewers, and instead of the former sprinkling with solution of sulphate of iron, the abundance of water permitted hydrants also to be placed for flushing as well. To this Sernon thinks much influence may have been due, and certainly the drinking of the pure water, and the purification of the surface and of the drains by its abundant supply, are more reasonable explanations of the non-prevalence of cholera than the assumption that the agent had lost the power of spreading. It had, in fact, prevailed heavily in the very vicinity of Dantzic, and we ought, therefore, to be careful in falling back on what is a mere assumption.

*Malarious Fevers.*

Dr. Munro,[1] in a paper entitled "Remarks upon Malarious Fevers, and Cholera, &c.," draws the following conclusions:—

(1) There is no such poison as malaria.

(2) Degrees of heat, acting upon moisture, are the agents which excite certain electrical conditions, which, acting on the sympathetic nervous system, are the direct agents in causing *fever*, hitherto called malarious.

(3) That the impression on the nervous system is a condition of paralysis of greater or less degree.

(4) That the fevers called intermittent, remittent, jungle, and yellow fever, and cholera, and heat apoplexy, are the manifestations of the different degrees of paralysis; and consequently, that these so-called different diseases are merely phases of one great type of fever.

(5) That quinine is the remedy which, if administered at the very commencement of any one of these phases of fever, is most to be relied on.

(6) That there is a stage of cholera (or the choleraic form of fever) described in this paper, which is the *first* stage, and which is almost invariably to be detected; what has hitherto been called premonitory diarrhœa being the commencement of the second or confirmed state of choleraic seizure. The first stage (as described by me) is that in which quinine is to be administered with every probability of success.

*Bodies floating in the air.*—Dr. Cunningham,[2] who is employed by the Government of India in the investigation of cholera in India, has made an elaborate investigation on the floating bodies in the air within the precincts of two large gaols near Calcutta. Microscopic powers of 400 to 1000 diameters were employed, the solid bodies being collected in an apparatus resembling Maddox's arrangement. The substances most frequently found were silica, amorphous granular masses, carbon, lime, starch-corpuscles, cells, hairs, and other fragments of vegetable tissues, fibres of cotton, &c., hairs and scales of insects, oil-globules, pollen-grains, spores and cells of fungi and algæ. Among the rarer constituents were acari, specimens of which occurred in four preparations; they were more or less disintegrated in most cases.

[1] 'Report of the Army Med. Depart. for 1872,' Append, No. IV., p. 266.

[2] 'Ninth An. Rept. of the San. Commissioner of the Govt. in India,' Appendix A; "Microscopic Examinations of Air."

Distinct bacteria were observed in one or two instances only, and then in very small quantities; but all the preparations abounded more or less in minute monad-like molecules and globules of an undefined nature. Bodies which could be supposed to represent or belong to the higher infusoria hardly ever occurred."

Pollen grains, especially of the grasses, were generally observed, and spores constantly, and generally in considerable numbers.

No connection was traced between the floating particles and diseases; but during the time of observation (February to September) there was scarcely any cholera in the gaols.

The air of the Calcutta sewers was also examined. Oily matter was present in considerable quantity, and bacteria were found in half the specimens of air examined. The great prevalence of bacteria in sewer-air makes Cunningham think that Cohn's surmise may be true: that it is not that they are not present in atmospheric air, but that they are not recognisable, because it requires that a large quantity of aqueous vapour shall be present in order that they shall exhibit their characteristic appearance.

Dr. Cunningham gives his conclusions thus:

1. The aëroscope affords a very convenient method for obtaining specimens really representing the nature of the true atmospheric dust.

2. Specimens of dust washed from exposed surfaces cannot be regarded as fair indices of the constituents of atmospheric dust, since they are liable to contain bodies which may have reached the surface otherwise than by means of the air, as well as others which are the result of local development.

3. Specimens collected by gravitation also fail to indicate the nature and amount of organic cells contained in the atmosphere, as the heavier amorphous and inorganic constituents of the dust are deposited in relative excess, due to the method of collection.

4. Dew also fails to afford a good means of investigating the subject, as it is impossible to secure that all the bodies really present in a specimen of it should be collected in a sufficiently small space, and moreover because it is liable to accidental contaminations, and also affords a medium in which rapid growth and development are likely to take place.

5. Distinct infusorial animalcules, their germs or ova, are almost entirely absent from atmospheric dust, and even from many specimens of dust collected from exposed surfaces.

6. The circomonads and amœbæ appearing in certain specimens of pure rain water appear to be zoospores developed from the mycelial filaments arising from common atmospheric spores.

7. Distinct bacteria can hardly ever be detected among the constituents of atmospheric dust, but fine molecules of uncertain nature are almost always present in abundance; they frequently appear in specimens of rain-water, collected with all precautions to secure purity, and appear in many cases to arise from the mycelium developed from atmospheric spores.

8. Distinct bacteria are frequently to be found amongst the particles

deposited from the moist air of sewers, though almost entirely absent as constituents of common atmospheric dust.

(9) The addition of dry dust which has been exposed to a tropical heat, to putrescible fluids, is followed by a rapid development of fungi and bacteria, although recognisable specimens of the latter are very rarely to be found in it when dry.

(10) Spores and other vegetable cells are constantly present in atmospheric dust, and usually occur in considerable numbers; the majority of them are living and capable of growth and development; the amount of them present in the air appears to be independent of conditions of velocity and direction of wind, and their numbers are not diminished by moisture.

(11) No connection can be traced between the number of bacteria, spores, &c., present in the air, and the occurrence of diarrhœa, dysentery, cholera, ague, or dengue; nor between the presence or abundance of any special form or forms of cells and the prevalence of any of these diseases.

(12) The amount of inorganic and amorphous particles and other débris suspended in the atmosphere is directly dependent on conditions of moisture and velocity of wind.

*Inhalation of gases and vapours.*—Dr. Louis Hirt,[1] in the second part of his work 'On the Diseases of Artisans,' deals with morbid conditions caused by inhalations of gases and vapours. His work has been translated into French by M. Edward Swartz, and it is desirable that an English translation of such an elaborate work should be made for the use of English medical officers of health. In the case of dust inhalation Hirt distinguished two sequences — sometimes the dust produced conditions similar to those which follow other causes; sometimes it gave rise to effects which no other cause can produce. For example, the dust of coal may either favour the production of a common catarrh or produce a special disease, anthracosis. With gases it is otherwise; they never cause a special affection, but only conditions common to them and to other causes. Sulphurous acid gas, for example, produces inflammation of the air-passages, but this inflammation has no special characters which would indicate its origin.

Hirt classes gases and vapours together as being the same, medically speaking, though different physically; in each case (as in the dust inhalations) a number of foreign particles are breathed into the lungs which may injure the organs of respiration; these effects, in the case of dust inhalation, are catarrh and consequent emphysema, inflammation of the lungs and inflammatory phthisis (die entzundliche Lungenschwindsucht). Some gases may also produce these effects, but other sequences also. The earlier chapters deal with the gases in their simpler form; the effects of carbonic oxide; carbonic acid; a mixture of the two, with a little sulphuretted hydrogen, as in coal and charcoal fumes; coal gas and sulphide of carbon need not be noticed except as regards one or two points. In speaking of carbonic oxide Hirt notices

[1] Chiefly taken from the 'Rept. of the Army Med. Depart. for 1872,' Appendix I, p. 234, being a notice by Prof. Parkes of 'Die Krankheiten d. Arbeiter,' erste Abt., zweiter Th.

the different effects produced by it when the temperature is high (25°–32° Cent.) or low (8°–12° Cent.). In the former case the convulsions are well marked, in the latter case usually absent. Individual conditions also influence its action; pregnancy, for example, greatly heightens its effects. In respect of coal fumes and of coal gas, Hirt remarks that it is of importance to know that cases of chronic poisoning are not uncommon.

*Carbonic acid.*—The effects of carbonic acid are given under several headings. The poisonous influence of large quantities of the pure gas is described as usual, but Hirt lays great stress on the modifying influence of constitution; some persons are much more affected than others, and while in most cases heaviness in the head, vertigo, noises in the ears and sparks before the eyes, come on, in other cases there is no head affection, but in its place very uneasy respiration, often combined with pain in the chest. Convulsions are also variable in their intensity and presence. In all cases, however, sooner or later, loss of consciousness and of power of movement comes on. With regard to chronic carbonic acid poisoning, that is, to the effect of the constant inhalation of small quantities insufficient to produce the toxic effects of the larger doses, Hirt concludes that there is not the least evidence in favour of any such chronic intoxication. He does not refer to any cardiac symptoms, nor does he seem to be aware of A. Smith's experiments. The effect of carbonic acid when mixed with other gases or with vapours, as in some trades, is another matter. Hirt remarks, in the first place, that it is a known matter of fact that, independent of any special trade, health suffers when a great number of workmen are employed in a small space. The effects appear to be attributed by him to increase of carbonic acid from its normal ·4 volume per 1000 to from 7·8 and 12 per 1000. Apart from these cases the trades in which carbonic acid is evolved are those in which organic substances are fermented, or in which carbonic acid is evolved from mineral matters. In the first category are beer-brewing, wine-making, distilling, and yeast-making, in all of which trades considerable quantities of carbonic acid are evolved. In none of these trades has Hirt been able to trace injurious effects, except the acute poisoning. He describes fully the effects of the carbonic acid evolved in the compressed yeast manufactory at Neisse, in Silesia, where an immense amount of carbonic acid is given off; the precise quantity has not been determined, but at the ground level it is supposed that it reaches 10 per cent. In this manufactory acute carbonic acid poisoning sometimes occurs, but no chronic effects, or any influence otherwise on health, are perceptible. In part this may be attributable to the excellence of the ventilation. Nor in the various processes of wine- or beer-making are injurious effects produced by the carbonic acid, though some other parts of the process (the cellar-work, especially, where, however, the atmospheric oxygen is lessened) may be hurtful.

Hirt's experience is therefore negative, but it must be observed that, as he several times notices, the ventilation of all these manufactories is good, and it therefore is really not clear from his work what is the precise percentage of carbonic acid which the men breathe. All his

evidence shows, however, that with good arrangements there is no danger in the industrial processes which give rise to disengagement of carbonic acid.

*Mixture of carbonic acid and other gases.*—In certain cases carbonic acid is mixed with other gases; this is the gas in churchyard and cemetery vaults, where the gases disengaged are carbonic acid, often in very great quantity, ammonia, and sulphide of ammonium; the less advanced the process of decomposition of the body, the larger relatively is the amount of $H_2S$. That there are also other matters in the air of burial vaults is not doubtful, but what these are is not known. The poisonous effects produced by this atmosphere are those of carbonic acid. When grave-diggers are not exposed to the dangers of an acute intoxication with carbonic acid, their calling is not, according to Hirt, in any way hurtful; the yearly annual mortality is only 17 per thousand, and the mean duration of life is at least 58—60 years (!).

Well-sinkers are, as is well known, also exposed to the dangers of acute carbonic acid poisoning, but in this case also Hirt denies that there is any chronic poisoning from constant inhalation of small quantities of the gas.

*Sulphuretted hydrogen.*—Hirt describes the acute $H_2S$ poisoning in the same way as previous writers. With regard to the vexed question of the liability of men who work amidst large quantities of $H_2S$ gas to suffer from chronic poisoning, he appears to have no doubt of its occurrence. "The symptoms of chronic $H_2S$ poisoning," he says, "consist chiefly in general weakness, depression, and generally perfect anorexia, which is combined with the feeling of a weight on the stomach; the tongue is furred; the mucous membrane of the mouth and face is pale; the breath is not always offensive; the pulse has a tendency to be slow. In some few cases there is a furunculoid skin eruption on several parts of the body, which forms nodules which suppurate.

Sometimes, however, he says the symptoms show more particularly poisonous action on the intestines; there is vertigo, headache, nausea, and diarrhœa, followed by gradual emaciation and then by head symptoms, so that the case "resembles one of very slow running typhus." Hirt notices, however, that there are great individual differences; some men are little or not at all affected, others greatly so, and in some the susceptibility increases with custom.

*Bisulphide of carbon.*—This substance, obtained by passing sulphur fumes over burning coal and subsequent distillation, is now much used in commerce in consequence of its solvent effects on india rubber and some other resins. On animals its vapour exerts poisonous effects, first exciting and then soon paralysing the nerves of respiration and circulation. In men its acute effects are seldom seen, on account of the small quantity inhaled, but it produces chronic poisoning in some workmen. The symptoms of this are described by Hirt, after Delpech, as mainly embraced in two periods of excitement and collapse; the first period begins with evening headache, pain in the limbs, and formication; sometimes there is intellectual excitement and exaltation; there are often cramps, difficulty of breathing, and increased frequency of the heart. The sulphide can be smelt in the urine. After some

weeks or months the second period follows—depression; heaviness; anæsthesia of some parts of the skin; diminution of sight and, in some cases, of hearing. Sexual desire, excited in the first period, is lost in this. The workmen generally leave the factory when these symptoms are marked, and appear to recover entirely or partially.

*The gases of putrefying substances.*—The bad-smelling gases and effluvia given off from animal substances, which are being macerated in order to prepare them for some trades' purposes, are those referred to by Hirt under the above heading. He does not profess to be able to state exactly the chemical nature of these effluvia; he says that "they consist of CH, $NH_3$, N, and sometimes also of $H_2S$," while the offensive smell is caused by the presence of trimethylamine, amylic, butyric, propionic, and formic acids.

The trades exposed to such emanations are tanners, catgut and gelatine makers, butchers, soap-boilers, candle makers, fullers, and cheese makers. In some of these trades, particularly in catgut and gelatine making, the odours are extraordinarily offensive, and, indeed, insupportable to persons who are unaccustomed to them. Yet Hirt declares that no injurious results follow. What he says about the gelatine makers may be quoted as an illustration. After remarking that the smell in the places where the manufacture goes on is truly insupportable by those who are unaccustomed to it, and that quantities of gases are developed (especially when lime is not sufficiently used) whose effect on the organ of smell defies description, and must be experienced in order to be known and feared, he goes on to say, "It is quite unproved that these evil-smelling gases and vapours in the gelatine manufacture are in any way injurious; on the contrary, when we study the state of health of these workmen, we are forced to the opinion that these vapours possess the property to strengthen the bodies of those who continually breathe them, and in this way contribute to the improvement of the health of the labourers. Inquiries in a tolerably large number of Silesian gelatine factories and white leather tanneries (where, also, much gelatine is often made), and observations on many artisans concerned with gelatine boiling, have convinced me of the correctness of this opinion. No single case has come before me where any affection, either of the lungs or of the digestive organs, has been proved to have any connection with these vapours. We are, therefore, not in a position to recognise any unhealthy action in the odours of the gelatine manufacture."

The effect of repulsive odours of this kind is, then, it is supposed, limited to the sense of smell, which soon acquires an extraordinary degree of tolerance. What is the exact composition of these odours? They are, no doubt, of organic nature, and not stable like a gas; consequently they are probably destroyed soon after their absorption into the blood, or they may not be absorbed at all, but remain outside the body. That they render the workmen actually healthier, as Hirt implies, seems unlikely, and possibly the high wages given in these repulsive trades, and the better food thus obtained, may have most to do with the high standard of health.

*Zinc vapours.*—In reference to the "brass-founders' ague" of Green-

how (the brass ague of Thakrah), Hirt describes the effects produced on himself when he was inquiring into the subject.

The first symptoms (coming on a few hours after the inhalation of the metallic vapours) are peculiar uncomfortable feelings in the body, weakness, pains in the back, and then often very severe muscular pains; the pulse and respiration are at this time tranquil. Then comes on a general shivering, lasting fifteen to twenty minutes; the pulse quickens, reaching 100 to 120, and cough ensues so severe as to cause pain in the chest and to make the frontal headache almost unbearable; the height of the attack is reached in from three to six hours, and then a copious sweat breaks out; the pains lessen and the patient falls into a deep sleep, from which he wakens with merely a little weakness and some remains of headache.

This curious affection, which might very well be mistaken for ague, is not lessened by habit; nothing protects the men from it; they fancy, however, that previously drinking large quantities of milk lessens the severity of the attacks.

With regard to its production by metallic fumes, no doubt is felt by Hirt. He does not, however, seem convinced that copper fumes may not play some part, and he also states that the workmen engaged in making zinc houses, who inhale pure zinc vapour without copper fumes (which exist in the fumes of smelters), never suffer from this brass-founders' ague.

*Vapours of iodine, bromine, and vapours from oil, tar, petroleum, benzoin, &c.*—Hirt states that poisonous symptoms from iodine and bromine vapours very seldom occur, but when they do happen they are acute, very variable in kind (cough, headache, sometimes partial loss of consciousness, irritation of the eyes and nose, and iodine catarrh), and are never or very rarely fatal.

Vapours from vegetable oils (such as rape, linseed) are not injurious. Hirt denies altogether the old statement of Ramazzini (that headache, giddiness, and cachexia are produced), and states that he could find no bad effects; indeed, he thought the workers in oil less liable to catarrh, and men with tendencies to chest disease appeared to get stronger. He could not, however, feel certain that phthisis was actually cured by the oil-vapour. In other vegetable oil factories injurious effects may arise from the dust produced by the pulverizing of the vegetable structures and by the effluvia from the volatile oils. But, with the exception of mustard dust, which sometimes cause violent bronchial catarrh, the bad effects are inconsiderable.

With regard to vapours of turpentine, Hirt relates some experiments on twenty-one men who inhaled considerable quantities of turpentine. He concludes that with persons unaccustomed to its use short periods of inhalation, during which much turpentine is introduced, produce injurious symptoms; respiration was slower, cardiac action quickened, and at a later date the brain and cord were affected, and there were heaviness, headache, nausea, noises in the ears, &c. Workmen, however, generally get accustomed to the fumes, and workmen in shellac, asphalt, and india rubber do not suffer, except in very rare instances,

when workers in india rubber may be injured by the inhalation of fumes of bisulphide of carbon.

The effects of the vapours evolved in the making of various tar products and in other trades have been also carefully studied by Hirt.

*Cysticerci.*—An anonymous writer[1] has recently placed before the British medical profession the researches of Pellizzari, Tommasi,[2] Perroncito, Lewis,[3] and Giacomini[4] upon cysticerci, and has collated them with the conclusions of Dr. Cobbold.

The experiments of Pellizzari and Tommasi were made jointly with the view of determining the temperature necessary for the destruction of cysticerci in measled meat. According to Perroncito, measly meat requires a higher temperature than boiling water for the destruction of the bladder-worms in question. He even stated that slices of measly meat after being fried in a vessel containing fat at a temperature of 347° to 400° Fahr. were not destroyed. Perroncito arrived at the startling conclusion that the melted fat alone of measled pigs should be utilised; that it is not certain that the cysticerci die at 176° to 212° Fahr.; but that we are quite sure that they dry up and become completely mummified at 257° to 302° Fahr. Pellizzari found, on the contrary, that cysticerci die at a temperature of only 140° Fahr. Giacomini appears to be ignorant of this refutation of Perroncito's conclusions, and reiterates them.

Dr. Lewis, who experimented upon both beef and pork, states as the result of his investigation—"(1) That exposure to a temperature of 120° Fahr. for five minutes will not destroy life in cysticerci, but that they may continue to manifest indications of life for at least two or three days after such exposure. (2) That exposure to a temperature of 125° Fahr. for five minutes does not kill them; but (3) after being subjected to a temperature of 130° Fahr. for five minutes they may be considered to have perished. After exposure to this and higher temperatures in no instance have I been able to satisfy myself that the slightest movements took place in their substance when examined, even under a high power. At least it may be confidently asserted that, after exposure for five minutes to a temperature of 135° to 140° Fahr., life in these parasites may be considered as absolutely extinct." It thus appears from the careful and concurrent experiments of both Pellizzari and Lewis that cysticerci of all kinds, whether found in beef, veal, or pork, cannot retain their vitality when exposed to a temperature of 140° Fahr.

Pellizzari then inquires how it is that, notwithstanding so low a temperature suffices to kill the parasites, yet cases of tapeworm are continually occurring. He adduces some interesting data by Marchi, who had stated that of thirty-five tænia, which he had examined only one was *Tænia solium*, all the other thirty-four being the unarmed

[1] 'Lond. Med. Rec.,' 1874, pp. 641, 690, 741.

[2] 'Append. Parasiti In. td. Anim. Domest. Trad. d. Ingl. (Cobbold) T. Tommasi.' Firenze, 1874.

[3] 'Rep. on the Bladder-Worms found in Beef and Pork.' By P. R. Lewis, M.B. Calcutta, 1872 (Blue Book).

[4] 'Cyst. Cell. Hom.' C. Giacomini. Torino, 1874.

*T. mediocanellata*; and Marchi asked how it happened that, notwithstanding the occurrence of 13,000 measled pigs in the public butcheries of Florence, he had seen but one specimen of *T. solium*, whilst thirty-four could not have originated in the pig. To this Pellizzari replies that it is because the hygienic regulations of the city require that the flesh of the pigs be raised to 140° Fahr.; and he then himself immediately proceeds to ask another question, namely, as to how it happens that the *Tænia solium* is so frequently seen in other places. He remarks that there are not so many sanitary precautions taken in other places, and that the people elsewhere consume more slightly salted or uncooked meat, as sausages and so forth. He explains that Marchi's thirty-four tapeworms might all have arisen from the consumption of the cysticercus of the ox, and then goes on to speak of the presence of tapeworm in Florence, even in little children. This last-named feature he attributes to the circumstance that raw meat is frequently employed as a restorative. He remarks that thirty years ago it was just as difficult to find a single *T. mediocanellata* as it is now easy to find a great number of these worms; and all because it is nowadays customary to eat the flesh of the ox either insufficiently cooked or raw. Pellizzari thinks that this absolute inversion of the facts of the case affords proof of the correctness of the position sustained by him, that the cooking of meat up to the degree of temperature necessary for ebullition ensures the destruction of the cysticerci.

Pellizzari thinks, notwithstanding, that the interference of meat inspectors may be pushed too far, and serve to bring about the very disasters which it should be their object to prevent. He argues against the entire prohibition of the sale of measly meat; such a rigid prohibition would lead to the smuggling of diseased meat, and it would, perhaps, be impossible to adopt such radical measures as would entirely stamp out tapeworm.

*Disinfectants.*—Dr. Ziurek[1] has experimented in Berlin on the influence of disinfectants upon human excrement, urine, the contents of ash-pits, middens, privies, sewers, &c. The disinfectants used were chloride of lime, permanganic acid, carbolic acid, green vitriol, lime, gypsum, and charcoal. He finds that not one of the above-named disinfectants absolutely prevents putrefaction and the generation of products injurious to health from setting in; and that with existing forms of middens it is impossible to prevent, by ever so liberal a use of disinfectants, the passage of the putrefactive process from the putrefying to the fresh contents of the pit. It is impossible when the solid and liquid excrements are mixed to obtain a thoroughly satisfactory disinfection. By separating the solids from the liquids, not only is it easy not only to disinfect, but also to filter the latter before they are allowed to pass into the sewers.

*Salicylic acid as a disinfectant and antiseptic.*—Professors Kolbe and Thiersch[2] recommend this substance, well known to chemists as an antiseptic and disinfectant, and the latter is of opinion that salicylic acid has all the advantages of carbolic acid, without its disadvantages.

[1] 'Vrtljhrsschr. f. Gerichtl. Med.,' N. F., xiv, p. 20.

[2] 'Polytech. Journ.,' 1874, July 2; 'Lond. Med. Rec.,' ii, p. 599.

It was ascertained that salicylic acid prevented the formation of prussic acid from amygdalin by the action of emulsin, of essential oil of mustard by the action of water on mustard, and of alcohol from grape sugar by means of yeast. One thousandth part of salicylic acid added to beer sufficed to preserve it from fungus growths when freely exposed to the air in a warm place. The acid was also found to retard the coagulation of milk (·4 per cent. added), and to preserve urine from putrefactive decomposition. Fresh meat rubbed with the acid kept sweet for weeks in the air. Nearly all the salicylic acid can be washed off, and only a scarcely perceptible sweet taste is left.

Professor Thiersch found salicylic acid very effective in surgery for dressing wounds. It is used in the same manner as carbolic acid.

Salicylic acid, $C_7H_6O_3$, differs from carbolic acid, $C_6H_6O$, by the elements of one molecule of carbonic acid; and on heating salicylic acid to a temperature of 220° to 230° Fahr. it is resolved into these two latter substances. Salicylic acid may be artificially prepared (synthesized) by acting upon carbolic acid with sodium and carbonic acid.

*Cellar-dwellings.*—At the annual meeting of the German Public Health Association in 1874 a paper was read by Dr. Scwabe[1] of Berlin, in which it is asserted that the death-rate is greater and that epidemic diseases prevail more severely in cellar-dwellings than in any others, and that among epidemic diseases diarrhœal affections occur with greatest intensity on the ground-floor.

*State medicine in England.*—Dr. Fodor,[2] who paid a visit to this country in 1873, at the expense of the Austrian Government, with the object of studying state medicine in England, and has since been appointed by the Hungarian Government first professor of state medicine in the new University of Klausenbourg (Kolosvár), has published an elaborate octavo, in the Hungarian language, on our medical institutions and practice. Such a work, if translated into our own language, would well repay perusal by our countrymen, as a criticism upon our institutions by a highly intelligent and educated foreigner.

*Alimentary substances.*—The siege of Paris gave rise to many attempts to reproduce artificially several well-known articles of daily dietary, the want of which was severely felt, and several special treatises and memoirs were published relative to this subject.

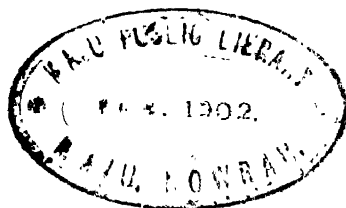
M. Gubler[3] proposed as a substitute for artificial milk an emulsion of an egg in 90 grains of sugar and three and a half ounces of tepid water. M. Dubrunfaut[4] proceeds by a more elaborate method. He takes, by weight, 500 parts of water; sugar 40–50 parts; dried albumen (an article of commerce) 20–30 parts; crystallized sodium carbonate 1–2 parts; olive oil 50–60 parts. These are emulsified by shaking them together. Two or three parts of gelatine may be substitued for the dried albumen, but with less advantage.

[1] 'Allgem. Med. Central. Zeit.,' 1874, Sept.
[2] 'Közegészségügy Angolországban, &c., irta Fodor József.' Budapest, 1873.
[3] 'Bull. de l'Acad. de Méd.,' xxxv.
[4] 'Comp. Rend.,' lxxii, p. 57.

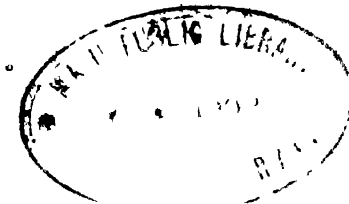
M. Dubrunfaut[1] also proposes to make rancid animal fats, such as suet, dripping, &c., edible by depriving them of their odour. This may be done by raising them to a temperature of 284°—302° Fahr., and introducing small quantities of water, which during its conversion into vapour deprives the fat of all unpleasant odour. Animal fats deprived of their peculiar and characteristic odours are not unknown in English commerce, and are sold as butterine, &c.

*Bread.*—Drs. H. Eulenburg and H. Vohl[2] draw attention to the adulterations practised on the Continent upon bread by mixing it, not only with alum, as was until lately the custom in this country, but also with copper sulphate (blue vitriol) and zinc sulphate (white vitriol). In bread purchased in Holland the ash amounted to so much as 2·01, 5·36, and 4·69 per cent., whereas pure bread was found to contain only 1·07 to 1·5 per cent. of ash. This indicates a large amount of mineral adulteration. The ash was found to contain aluminium in some cases, in others copper, and in others, again, zinc. Such breads would not produce the ordinary symptoms of poisoning by salts of the respective metals, but would cause digestive troubles. Happily the public analysts in this country, appointed under the statute of 1872, have been able to detect in English bread no worse ingredient than alum, which during the process of baking is decomposed into insoluble aluminium phosphate and an alkaline sulphate.

[1] Ibid., loc. cit.
[2] 'Archiv der Pharm.,' quoted in 'Ann. d'Hyg.,' xl, p. 225.



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